MAY 25, 1959

PAPER TRADE JOURNAL

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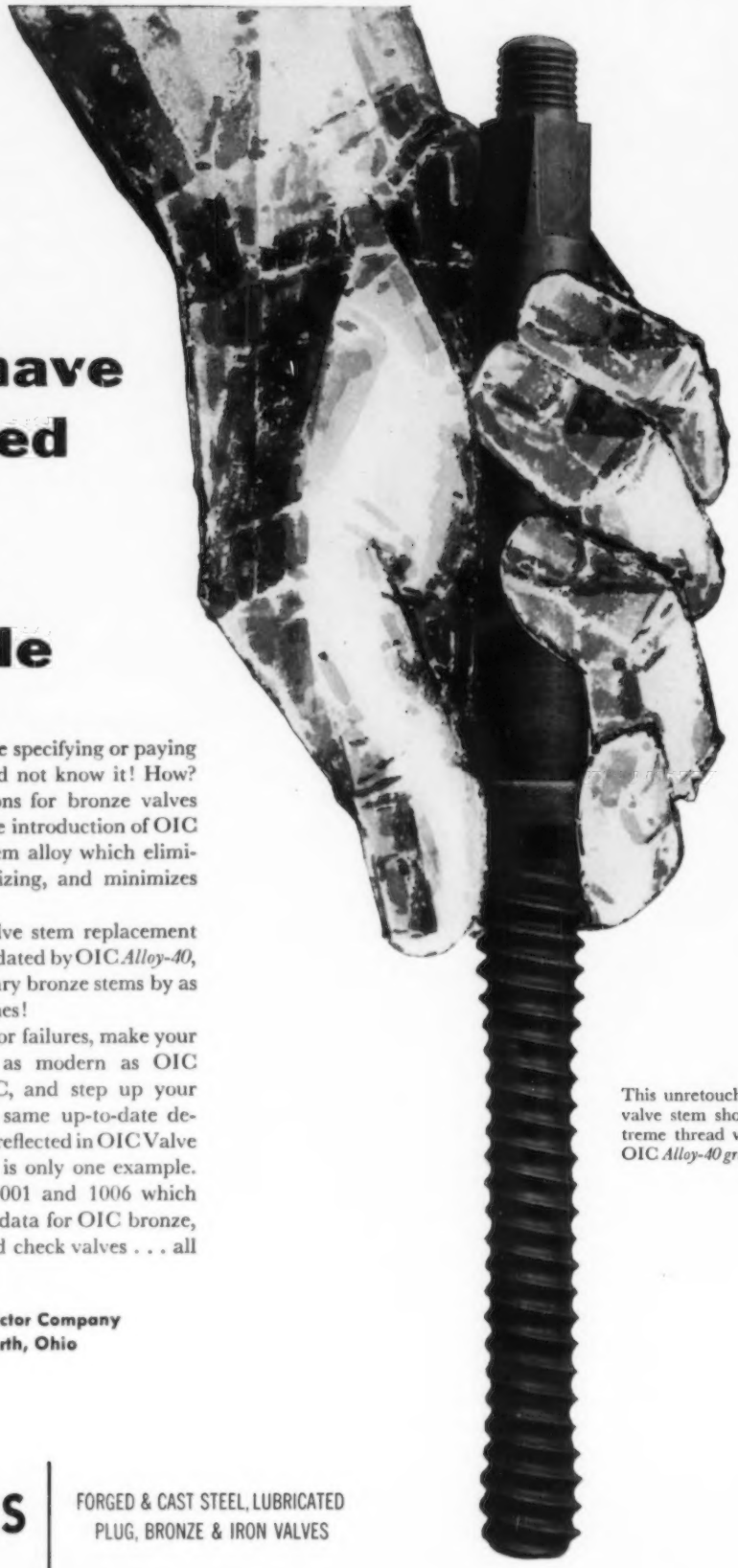

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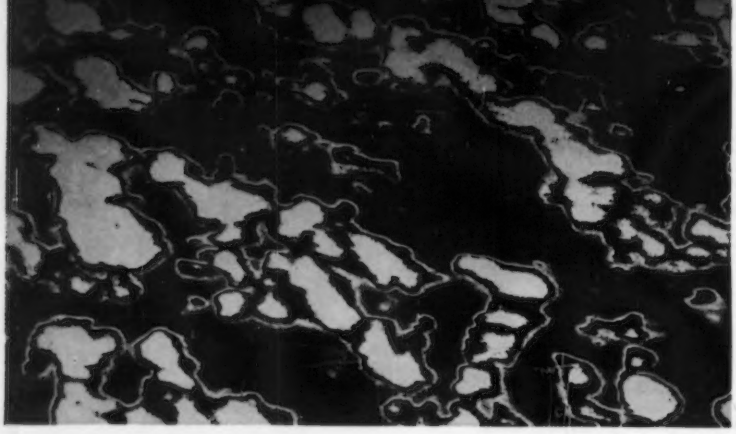

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PAPER TRADE JOURNAL

PUBLISHED WEEKLY SINCE 1872

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Editor

PAUL D. VAN DERVEER
Associate Editor

R. E. THUEMMES
Associate Editor

HARRY L. DYER
Assistant Editor

K. E. PATTERSON
Assistant Editor

L. HAMEL
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TRENDS 11

NEWS OF THE WEEK 13

FEATURE ARTICLES

First Large NSSC Recovery System Proves Out 22

Industry Executives Examine Expanding Horizons 29

New Specially Tailored Coating Latex 32

Unloading Hopper-Bottom Chip Cars 46

Feasibility of Using Lake States Hardwoods for Newsprint and Other Pulp and Paper Products 48

PAPER PEOPLE 16

NEWS OF CONVERTERS 21

NEW LITERATURE 28

NEW EQUIPMENT AND SUPPLIES 50

OBITUARIES 59

PRICES OF FIBERS 60

NEWS OF SUPPLIERS .. 62

FIGURES OF THE WEEK 67

CLASSIFIED ADVERTISING 70

ADVERTISERS INDEX .. 74

REMEMBER THESE DATES

June 2-4, American Pulp and Paper Mill Superintendent's Ass'n., National Meeting at the Shamrock Hilton Hotel, Houston, Texas.

June 17-20, Summer Meeting, Technical Section, C.P.P.A., Manoir Richelieu, Murray Bay, Que., Canada.

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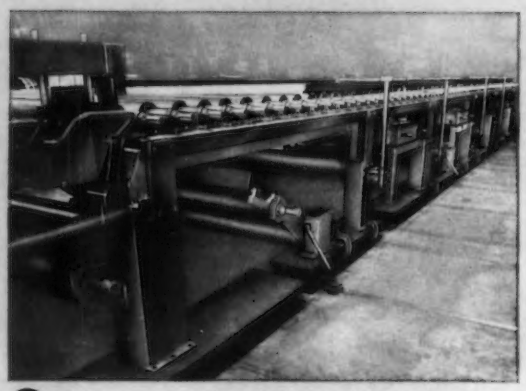

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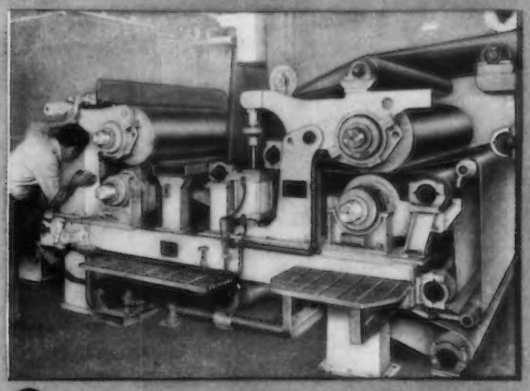

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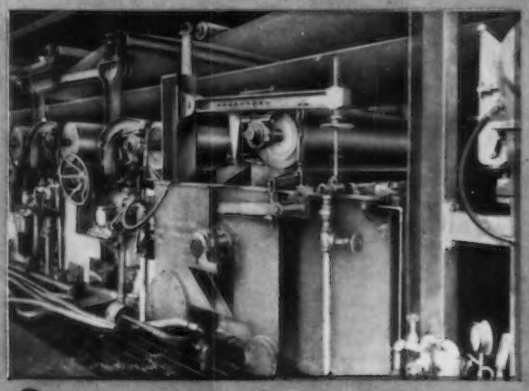

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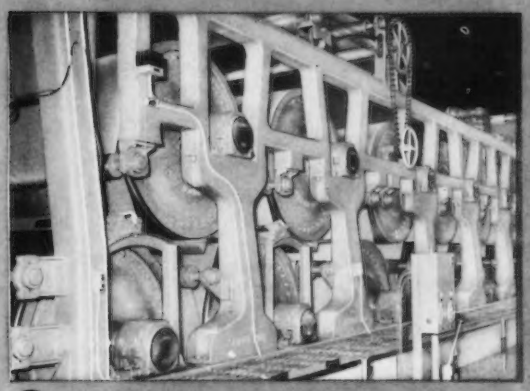

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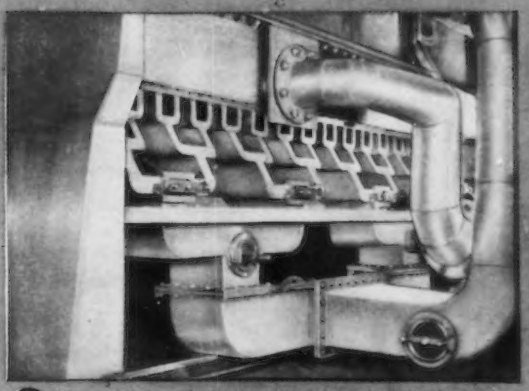

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Aerial view of Thiele plant and mines at Sandersville, Ga.

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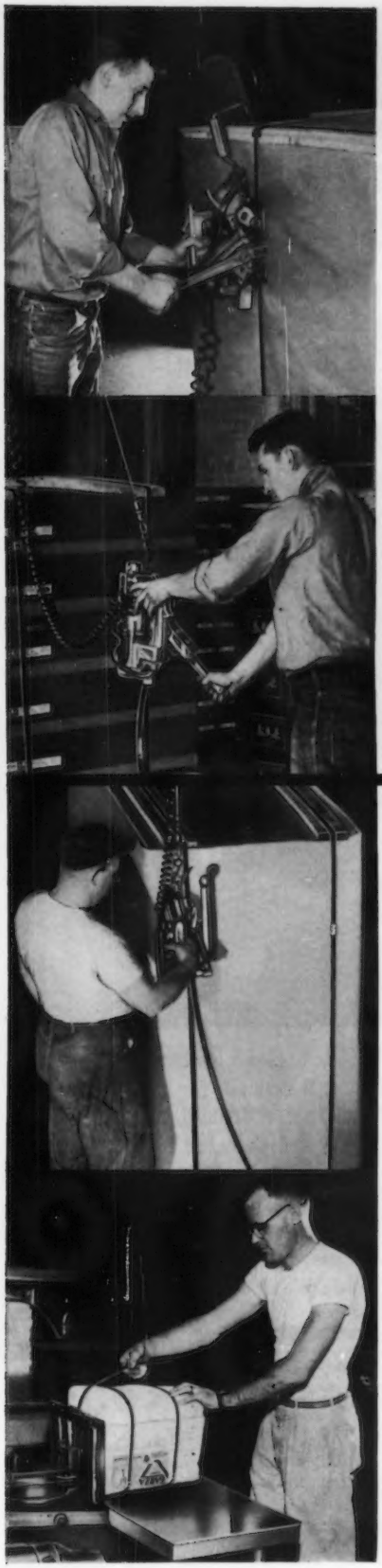

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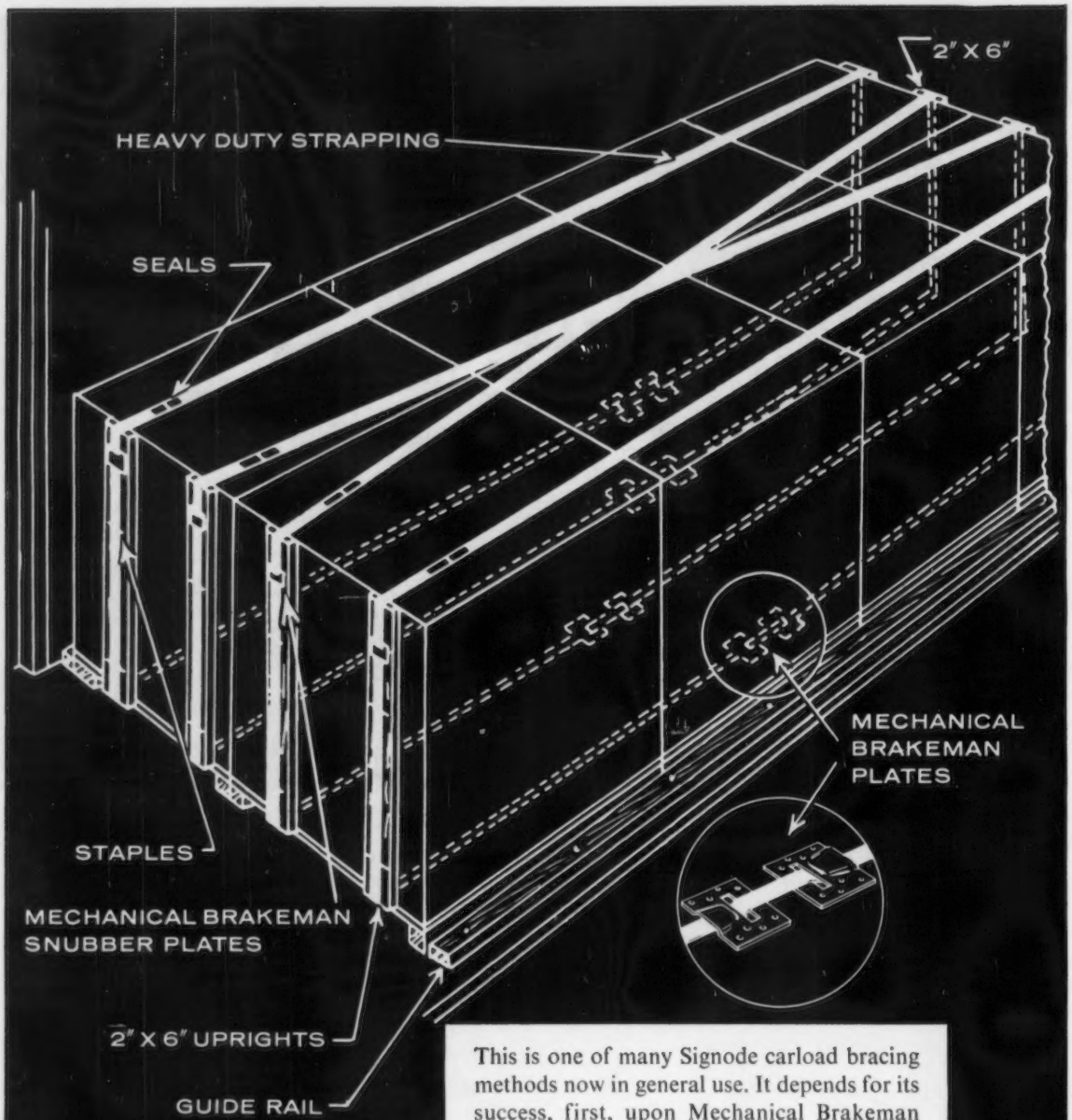

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Trends

All Time High for Cans and Tubes

The highest monthly volume for civilian consumption of fiber cans and tubes in history was recorded in March, the National Fibre Can & Tube Assn. reported at its 26th annual meeting in mid May. Total volume in March of this year was 19% over that of March, 1958.

Mill Expansion Tempo Steps Up

The mill expansion tempo seems to be stepping up again. In this issue we report a new pulp and paper mill for California, and new large board machines for Georgia and Oregon.

Folding Boxes Maintain Advance

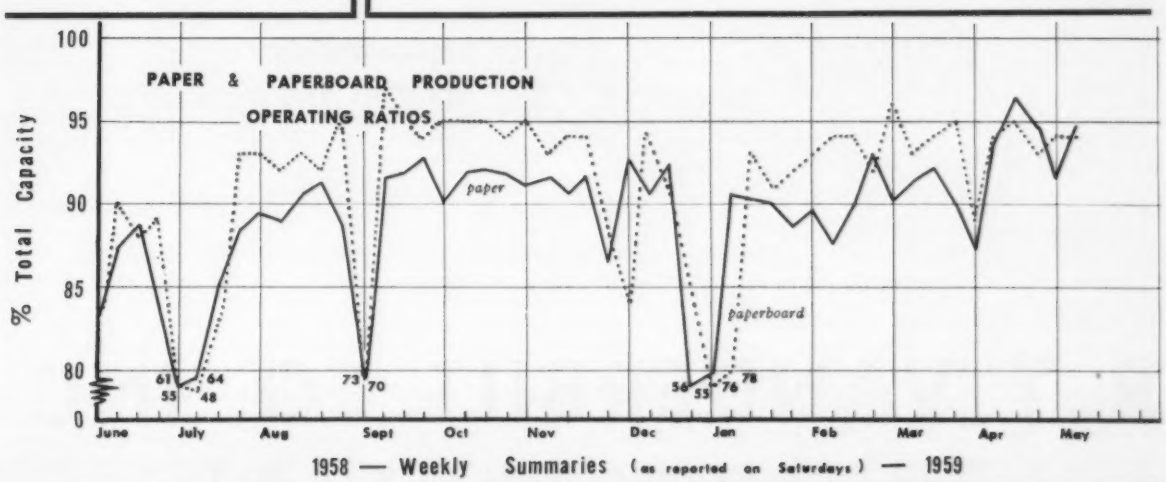
Shipments of folding paper boxes in April maintained the strong advance begun early this year. Dollar volume for April 1959 topped the corresponding month of last year by 5.7% while tonnage increased 5.2% in the same period, the Folding Paper Box Ass'n. of America reports. Volume for the first four months of this year now exceeds by 3% the total shipments reported for the like period of 1958, but still trails 1957.

Waste Paper Demands Continue High

Waste paper markets continue to handle the high demands of the paper and board mills. Prices appear slightly firmer. Mixed paper is reported in short supply in the New York area but the price was unchanged at press time.

Progress Being Made on NSSC Recovery

We have previously pointed out here the need for an effective recovery system for NSSC pulping. It has therefore been a pleasure to report on the commercial operation of two different types of systems (one in the May 18 issue and the other in the current issue).



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PAPER TRADE JOURNAL
WEEK OF MAY 25, 1959

Georgia-Pacific to Build New Mill, Also Expand Toledo

Plans for substantial expansion of its paper and containerboard operations were disclosed May 21st by H. Stuart Daniels, president of Georgia-Pacific Paper Co. The paper company, a wholly owned subsidiary of Georgia-Pacific Corp., completed construction of a 250 ton daily capacity kraft pulp and paper mill, adjacent to its plywood and lumber mills at Toledo, Ore., in 1957, and expanded it by 40 per cent by the end of 1958.

The current program involves two steps. The first will double the present capacity at Toledo, Ore., by the addition of another paper machine on which construction will be started in 30 days with production estimated by mid 1960. This will bring the total production of the mill to over 600 tons a day.

In addition, Mr. Daniels announced that Georgia-Pacific plans to construct a new pulp and paper mill at Samoa, Calif., to utilize the waste wood from the corporation's forest products operations in the Eureka-Samoa area. Georgia-Pacific owns over four billion feet of timber in northern California adjacent to that location.

One new plywood mill was put into operation at Samoa in the first quarter of this year. Another is under construction and scheduled to come into production in the third quarter. The waste wood from these two plywood mills plus the corporation's lumber mills at Eureka and Samoa will provide the raw material for the company's new pulp mill at Samoa.

Forest Kraft Co. Established

In a joint announcement, the Inland Container Corp., Indianapolis, Ind., and The Mead Corp., Dayton, Ohio, report the establishment of the Forest Kraft Co., for the purpose of financing an expansion program in the mill of the Rome Kraft Co. at Rome, Ga., to meet anticipated requirements of containerboard for the two parent companies.

A new paper machine, 254 inches wide, with a daily capacity of 500 tons of containerboard, together with pulp production facilities and additional power services to support the new operation will be installed.

Contracts have been arranged with The Rust Engineering Co. for the design and construction of the new plant, which is expected to be ready for operation during the second half of 1961. The paper machine has been placed on order with the Beloit Iron Works.

Sherman Paper Grants Sorg License

Sherman Paper Products Corp., Newton Upper Falls, Mass., manufacturer of specialty packaging papers for the food and industrial field, has announced a license agreement with the Sorg Paper Co., Middletown, Ohio, for the manufacture of latex coated cohesive papers under Sherman Paper Products Corp.'s existing patents.

In granting Sorg the license, E. W. Pitt, executive vice president of Sherman Paper, pointed out that his company has been manufacturing similar products under the Jennings patents and others granted to Sherman Paper covering cohesive paper, which they market under the trade name of Spot-Seal. The patents relate to the product and the process of producing latex coated cohesive papers.

Happy Birthday to us

With this issue PAPER TRADE JOURNAL begins its eighty-eighth year of continuous publication.

Move Closer to Oregon Pulp Mill

Purchase by Brooks-Scanlon Inc., Bend, Ore., of 1040 acres of land and its Deschutes river water rights is thought to be another move preliminary to the construction of a pulp mill in this area.

Several years ago Powell River Co., Ltd., of British Columbia and Brooks-Scanlon officials announced plans for the construction of such a mill in the central Oregon region.

MacAndrews & Forbes Merger Plan in Doubt

R. M. Bickerstaff, Jr., president of MacAndrews & Forbes Co., told shareholders at the annual meeting that the company is planning merger talks with Yorktown Paper Mills, Inc., York, Pa.

He said, however, chances of actually merging appear slim. A stockholders' resolution to set up a committee to study the merger was defeated at the meeting.

Whiting Paper Sells Two Holyoke Mills

Two mills in Holyoke, Mass., have been sold by Whiting Paper Co.,—maker of writing paper — one to Whiting and Co., of Holyoke, and the other to Romar Tissue Mills of Wheelwright.

The mills have been idle for two years.

The No. 2 mill which was sold to Whiting and Co., will be put into operation immediately with 150 to 200 employees. The No. 1 mill, sold

to Romar, won't be in operation for another year.

The Whiting Paper Co. was established in 1865 by the late U. S. Rep. William Whiting (R) and later operated by his son, William F. Whiting, secretary of commerce under President Calvin Coolidge.

After the secretary's death, the firm was operated by his three sons.

St. Croix Denies Merger Rumors

The St. Croix Paper Co. denies merger or diversification rumors that some financial observers said were behind the sharp rise in the Maine paper company's stock in recent days.

Students' Version of Annual Report by Scott

Publication of a special "Student Edition" of Scott Paper Company's 1958 Annual Reports believed to be the first of its kind. Offered at no cost to colleges and universities throughout the nation for use in their courses in business and economics, this publication is the latest addition to Scott's continuing program of aid to education.

It was designed, to provide students with an explanation of a corporate annual report in everyday language in order to promote a better understanding of business operations and their significance in the general economy.

The Student Edition consists of the regular Scott Annual Report with specially annotated pages, keyed to the text and figures of the Report, setting forth brief explanations of corporate operations and accounting terminology. Special attention is devoted to the consolidated financial statements, the shareholders' investment and other significant items.

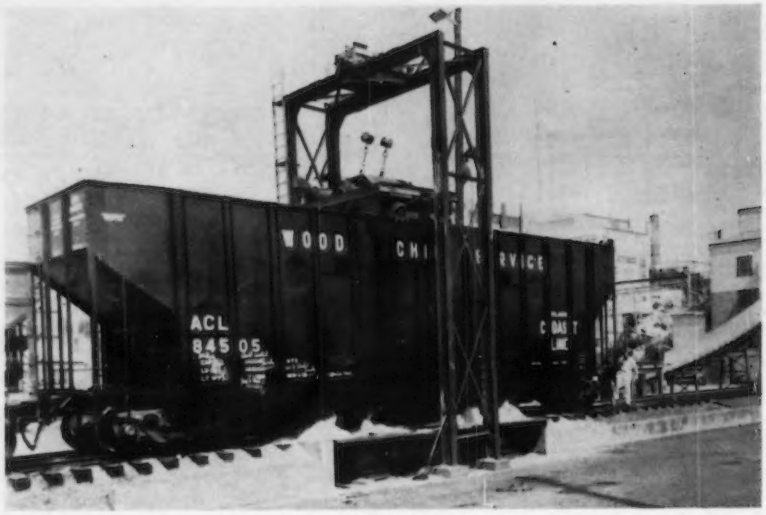
Commenting further on this report, Thomas B. McCabe Scott president said, "This unique Student Edition has been undertaken because we firmly believe that it is the responsibility of industry to provide all possible help in telling the story of free competitive enterprise and its vital roll in our American economy.

Paper and Board Production

According to the American Paper and Pulp Ass'n., the ratio of the United States production to mill capacity for the week ending May 9, 1959, was 94.8 per cent compared with 94.8 per cent revised for the preceding week. The ratio was 87.2 per cent for the corresponding week a year ago.

The paperboard production ratio for the week ending May 9, 1959, was 94 per cent compared with 94 per cent for the preceding week and 86 per cent for the corresponding week a year ago.

(Detailed statistics on page 67.)



ONE OF ATLANTIC COAST LINE Railroad's new 70-ton capacity wood chip hopper cars is unloaded at the Charleston, S. C., plant of West Virginia Pulp & Paper Co. The new hoppers, largest ever built for wood chip service, hold 28 to 30 units of chips. Two hundred of the giant cars are being turned out at the rate of 40 a month at Coast Line's Waycross, Ga., shops.

Program for Tenth TAPPI Testing Confab.

The Multinomah Hotel, Portland, Ore., will be the site of the 10th TAPPI Testing Conference, August 17 to 21, 1959.

The conference will open with two mill visits. Visitors will have a choice of:

1. The largest completely integrated wood products mill in the world. This is the Weyerhaeuser Timber Co. mill in Longview, Wash. On one 800-acre mill site TAPPI testers may see three lumber mills, a plywood plant, four pulp mills, a chemical plant and extensive research facilities.

2. The Research and Development Center of the Crown Zellerbach Corp. in Camas, Wash. This is the main center of research from the tree through spent liquor chemicals to finished paper in every imaginable form.

The next three days will be devoted to papers on all types of testing. The theme of the conference is "Pulp Testing"; however, all types of testing will come under discussion.

Paper Exporters Elect Officers at Meeting

Charles N. Auer, sales promotion manager of Champion Paper Corp., S. A., was reelected president of the United States Paper Exporters Council, Inc., at its seventeenth annual meeting held on May 15th.

The Council also reelected as its vice president Robert M. Robert, president of Aquatex Paper Corp., and as its treasurer, Frank Gallego, assistant vice president of Elof Hansson, Inc.

In addition to the officers, the board of directors includes Thomas S. Greiner, vice president of American Paper & Pulp Co., Inc., and William Freund, secretary of Paper Corp., of United States.

Executives secretary and counsel is Harold Held, of Javits & Javits of New York City.

Brown Adds New Wiper To Nibroc Line

A new heavy-weight windshield wiper called Nibroc "Two-Ply, Hi-Dry" has been developed by Brown Co. The 2-ply addition completes the Nibroc line of wipers, paper towels and tissue for service station rest rooms. The new wiper is said to have

more bulk, is softer and has more water-holding capacity. One wiper can be used for all glass areas around the car.

St. Joe to Make Boxes in Cincinnati

The St. Joe Paper Co. of Jacksonville, Fla., has purchased a 120,000 square-foot building in the Cincinnati suburb of Sharonville, from Electric Auto-Lite Co. for installation of equipment to manufacture corrugated boxes and containers.

The company plans to ship board to the Cincinnati plant from Florida to produce boxes and containers for the Midwest market. Production start-up is several months away.

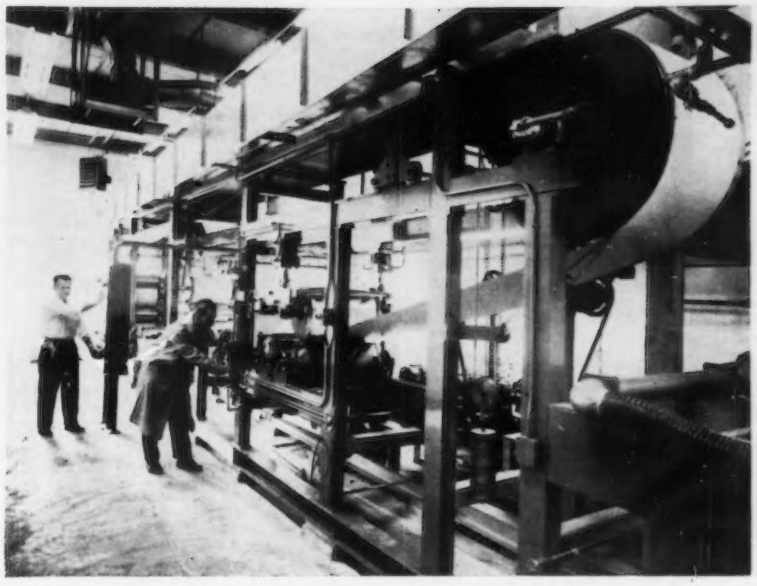
Empire TAPPI Plans Strong Program

The Empire State Section TAPPI annual meeting is being held at Whiteface Inn June 11-13. The program chairman is Professor F. W. O'Neil, of the New York State College of Forestry. The morning sessions will be given over to the presentation of papers on two subjects "Paper Mill Cleanliness" and "Films and Foils."

Afternoons will be devoted to workshop groups to discuss the paper presented during the morning sessions. Those who attend the convention will thus have an opportunity to exchange ideas with panelists and others in an informal atmosphere.

Registration begins Thursday afternoon, June 11, followed by the chairman's reception.

LEONARD J. DOYLE, vice president of Union Bag-Camp Paper Corp.'s, is shown above (right) as he was recently sworn in as advisor to the director, Forest Products Division, Business and Defense Services Administration, U. S. Department of Commerce, by Administrator Horace B. McCoy (left).



Full length view of new paper coating machine. Laboratory technician, R. Eodice, is shown checking pressure exerted by top coating roll while D. S. Greif, supervisor of coating applications stands ready at main control panel.

Highly Flexible Lab Coater Installed

Differences between full-scale paper finishing and operations simulated in the laboratory to test coating and sizing materials prior to mill use were reduced to a matter of inches as National Starch and Chemical Corp. researchers began work with a new pilot paper coater that has been installed at the company's Alexander Research Labs in Plainfield, N. J.

National said its new coater is the largest and most elaborate piece of experimental equipment ever acquired for its laboratory. Basically similar to full-size mill equipment except in roll width, the machine is capable of coating, drying and calendering (both super or machine) in one continuous operation. It can also be set up to calender independently of the coating and drying stages.

The coater is 45 feet long, 10½ feet high and can run 22-inch wide paper rolls through its various stations at speeds up to 2,000 feet per minute. It was engineered to the company's specifications by the Wheeler Roll Co. of Kalamazoo, Mich.

The coater will do all six major types of coating and sizing processes as they are performed by the latest mill equipment. These operations are air knife, trailing blade, roll, reverse roll, size press, and modified size press. The company said it plans in the near future to add rolls for gravure and offset gravure coating.

According to Leonard Wood, technical manager of Paper Development and Service, the installation of such apparatus was made imperative by the growing complexity of modern paper finishing. "Because the coater is so much like regular mill equipment," Wood explained, "we now have a means of simulating actual plant operations with a high degree of accuracy. This gives us a decided advantage in exposing newly formulated materials to conditions under which they will have to perform to complete customer satisfaction. We will no longer have to ask the paper mills to do this final experimental stage for us."

Another important way in which National believes the coater will be valuable both to itself and the paper industry is in the study of still unexplained variables that contribute to the unpredictable nature of paper production. As examples of the type research the coater will expedite, the company pointed to tests for printability; development of new and improved water resistant binder systems; development of light weight coating methods for publication papers; research on cationic starches for coating binders; development of resin materials for functional coating purposes such as high greaseproofness and low MVTR; new and improved methods of coating with standard binders.

PAPER PEOPLE

W. L. Robinson

L. M. Fearing

Longview Fibre Makes Robinson Chief Forester

Longview Fibre Co. has announced the promotion of Walter Lee Robinson from northwest tree farm supervisor to chief forester of the firm, effective immediately.

Mr. Robinson is a graduate of the University of Idaho with a bachelor of science degree in forestry, and attended Oregon State College where he earned his masters degree in forestry. He joined Longview Fibre in June of 1951 as a member of the forest engineering crew, and was promoted to tree farm supervisor of the Northwest Oregon Tree Farm in 1952.

Rhinelander Adds to Staff

Joseph A. Boyle has joined the staff of Rhinelander Paper Co. division of St. Regis, as project chemist in the plant control laboratory, as has Robert F. Sweitzer as research chemist in the Ripco research department.

Mr. Boyle comes to Rhinelander from the U. S. Army Chemical Corps. A graduate of Western Michigan University with a bachelor's degree in paper technology, he was associated with Allied Paper Corp. in Kalamazoo, Mich., as a chemist.

Mr. Sweitzer is a graduate of Syracuse University's College of Forestry in Syracuse, N. Y., with a B. S. degree in pulp and paper technology. He worked for the St. Regis Paper Co. mill in Pensacola, Fla., during the summer of 1956.

International Paper Votes Executive Changes

At their annual meeting the board of directors of International Paper Co. voted changes in the duties of the senior officers of the company.

John H. Hinman will continue to serve as chairman of the board, the position he has held since 1954. He will continue active in matters of major policy, but has asked to be relieved of his duties as chief executive officer.

Richard C. Doane continues in his position as president and assumes the duties of chief executive officer. Lamar M. Fearing, a vice president of the company since 1957, who was elected as a new member of the board of directors at the annual meeting of shareholders held earlier was named executive vice president.

Mr. Doane was elected president of the company in 1954 after having served as vice president and general sales manager and as vice president and general manager of Canadian International Paper Co. He has been a member of the board of directors since 1949.

Mr. Fearing joined the company in 1924 as a sales apprentice. In 1953 he was named sales manager for the fine paper and bleached board division. Subsequently, he was named assistant general sales manager in charge of sales of primary grades and in 1957 he was elected vice president. His election to the board was to fill the vacancy created by H. R. Weaver, a member since 1936, who requested that his name not be submitted for re-election this year. Mr. Weaver retired as first vice president of the company in 1955 after 43 years of service.

All other members of the board of directors were re-elected.

Consolidated WP&P Promotes Burnie

Hugh D. Burnie has been appointed coating department superintendent at Wisconsin Rapids Division of Consolidated Water Power & Paper Co., Wisconsin Rapids.

Mr. Burnie, who succeeds the late Mike Nilles, was graduated from Queens University, Kingston, Ontario, with a degree in chemical engineering in 1951. He was employed for two years by Provincial Paper Co., Port Arthur, Ontario, before enrolling at Western Michigan State College where he received a degree in paper technology in 1954. He joined the company during the same year and has served as assistant coating superintendent, mill chemist, and more recently as a project engineer in the research and development department.

Daley Elected Ass'n Vice President

Walter H. Daley, vice president and general manager of Independent Paper Stock Co., was elected regional vice president for the Pacific Coast of the National Ass'n. of Waste Material Dealers at its annual board of directors meeting on April 7 in Chicago.

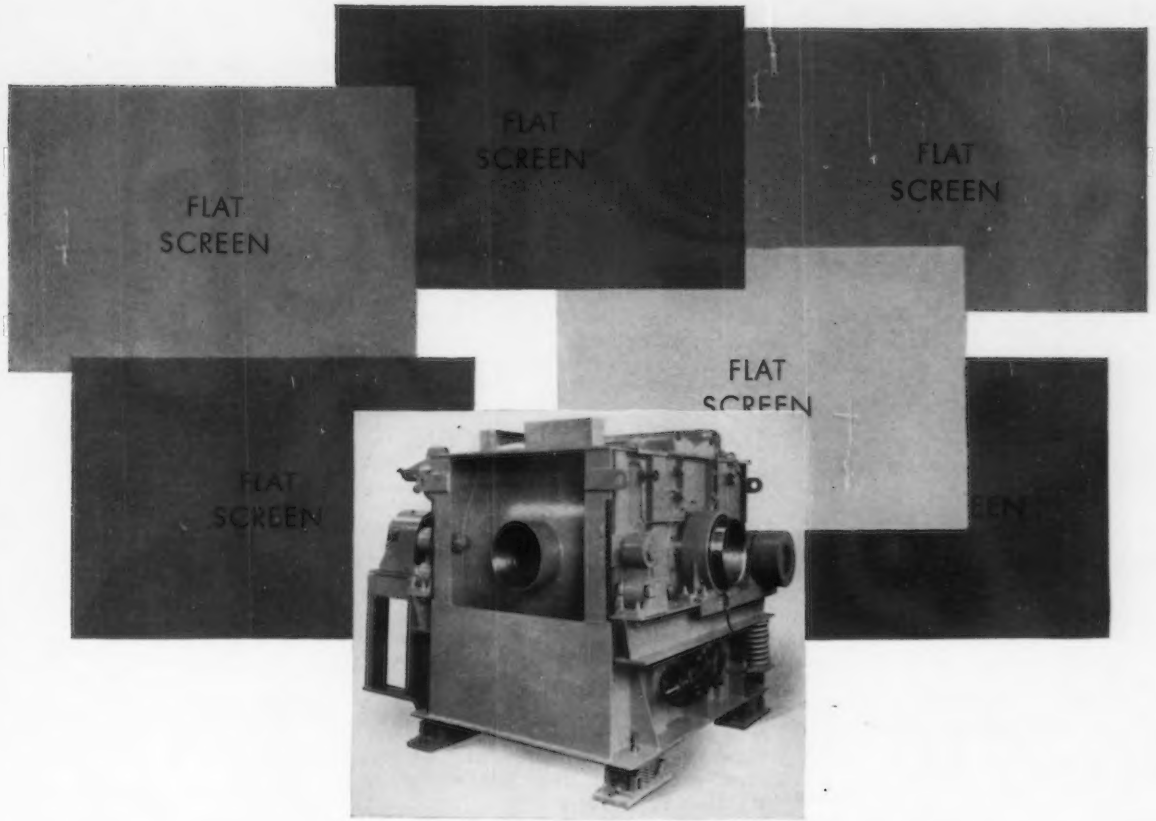
Mr. Daley's election follows a three-year term as a member of the board of directors. He was also reappointed Pacific Coast chairman of the Paper Stock Institute of America.

Continental Can Names Earle Vice President

T. W. Earle of Savannah, Ga., general manager of the Woodlands Division of Continental Can Co., has been elected a vice president of the company.

Mr. Earle graduated in 1922 from Syracuse University with a degree in forestry. In 1923, he joined the St. Lawrence Corp. as woodlands manager, and later served also as assistant to the president. He joined the North Carolina Pulp Co. in 1937 as general manager of woodlands.

In 1945, when Southern Paperboard Corp. formed the subsidiary Gair Woodlands Corp. to acquire and manage timberlands, Mr. Earle be-



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came president of Gair Woodlands. Southern Paperboard became a subsidiary of Continental Can in 1956 and Mr. Earle was named to head woodland operations.

J. R. Hahn

Hahn Named Sales Mgr. For Bowater Board

Joseph R. Hahn has been appointed sales manager for Bowater Board Co., Catawba.

Bowater Board will be produced at a hardboard mill under construction at Catawba and production is scheduled to begin next year.

A sales veteran in the building materials field, Mr. Hahn has been associated with Masonite Corp., for the past 12 years. Just prior to joining Bowater he filled the position of assistant to the general sales manager of Masonite. In addition, he also was formerly associated with the sales department of Armstrong Cork, another building materials leader.

Mr. Hahn will be responsible for staffing the sales organization for Bowater Board and developing sales and merchandising programs.

Riegel Paper Announces Changes in Personnel

The following personnel changes have been made in the New Jersey and Carolina mills of Riegel Paper Corp.

In New Jersey, William E. Anderson has been promoted to assistant superintendent of the converting department in the Milford mill. Merle L. Noyes was transferred from the technical department in Milford to the newly created position of technical assistant to the superintendent of the converting department.

Joseph Judge was appointed assistant mill superintendent of the Hughesville mill. Robert Osborne was made night superintendent of the Hughesville mill.

In the Carolina Division, George Root has been named coating technologist. He was formerly a research chemist with Potlatch Forests in Lewiston, Idaho.

Long Bell to Have New Sales Manager

The Long-Bell division of International Paper has a new general sales manager, O. D. Harrington who started with Long-Bell in Louisiana in 1924, becoming assistant general sales manager last year. He succeeds Earl H. Houston who is retiring as sales chief but will remain as consultant.

Clemons Joins Grace Y Cia. At New Puerto Rican Mill

Claude Clemons, veteran international papermaker, has joined Grace & Co.'s new mill at Areceibo, Puerto Rico, effective in June 1959.

At one time, Mr. Clemons was general superintendent of the Gardiner Paper Mills, Gardiner, Me. Later, he was superintendent of the Compania, Industrial, Commercial del Sur, Montevideo, Uruguay. Subsequently, he came associated with the Los Angeles Paper Box & Board Mills and has been with them until his recent affiliation with Grace y Cia.

Coe Succeeds Gilmer At Mead Kingsport Div.

Robert I. Coe has been named purchasing agent for Mead Corp.'s Kingsport, Tenn., Div. He assumes the position held for 38 years by W. R. Gilmer until his death May 3rd. Mr. Coe had been assistant purchasing agent since 1954.

He joined Mead in March 1952 as purchasing trainee and later worked as an assistant in the purchasing office at Chillicothe, Ohio. In August 1954 he was transferred to Kingsport as assistant purchasing agent and given the special assignment of relocating the division stores department and revamping its policies.

Scott Paper Promotes Ward and Morgan

Scott Paper Co.'s Detroit office announced that Charles G. Ward, Jr. has been promoted from district sales manager, Detroit, to assistant director of product development at the home office of Scott Paper in Chester, Pa.

W. L. Morgan has been appointed as the new sales manager, Detroit, for the company. He began his career with Scott Paper in Cincinnati in 1950 and has been promoted through a series of sales districts. Most recently he has been a sales training supervisor in Chicago.

T. T. Kryza

Paterson Makes Kryza Indust. Sales Mgr.

Paterson Parchment Paper Co.'s Bristol, Pa., has appointed Theodore T. Kryza to the newly created position of manager of industrial sales.

Among the industries which Mr. Kryza will contact in his new assignment are the chemical, rubber, plastics, bakery, candy, food processing, food packaging, electrical, paint and industrial packaging.

Mr. Kryza was formerly technical service manager within the Paterson product development department. He joined the company in 1955. Previously, he had been associated with the Rohm & Haas Co., Philadelphia, as a research chemist, and with the Richardson Co., as a sales engineer.

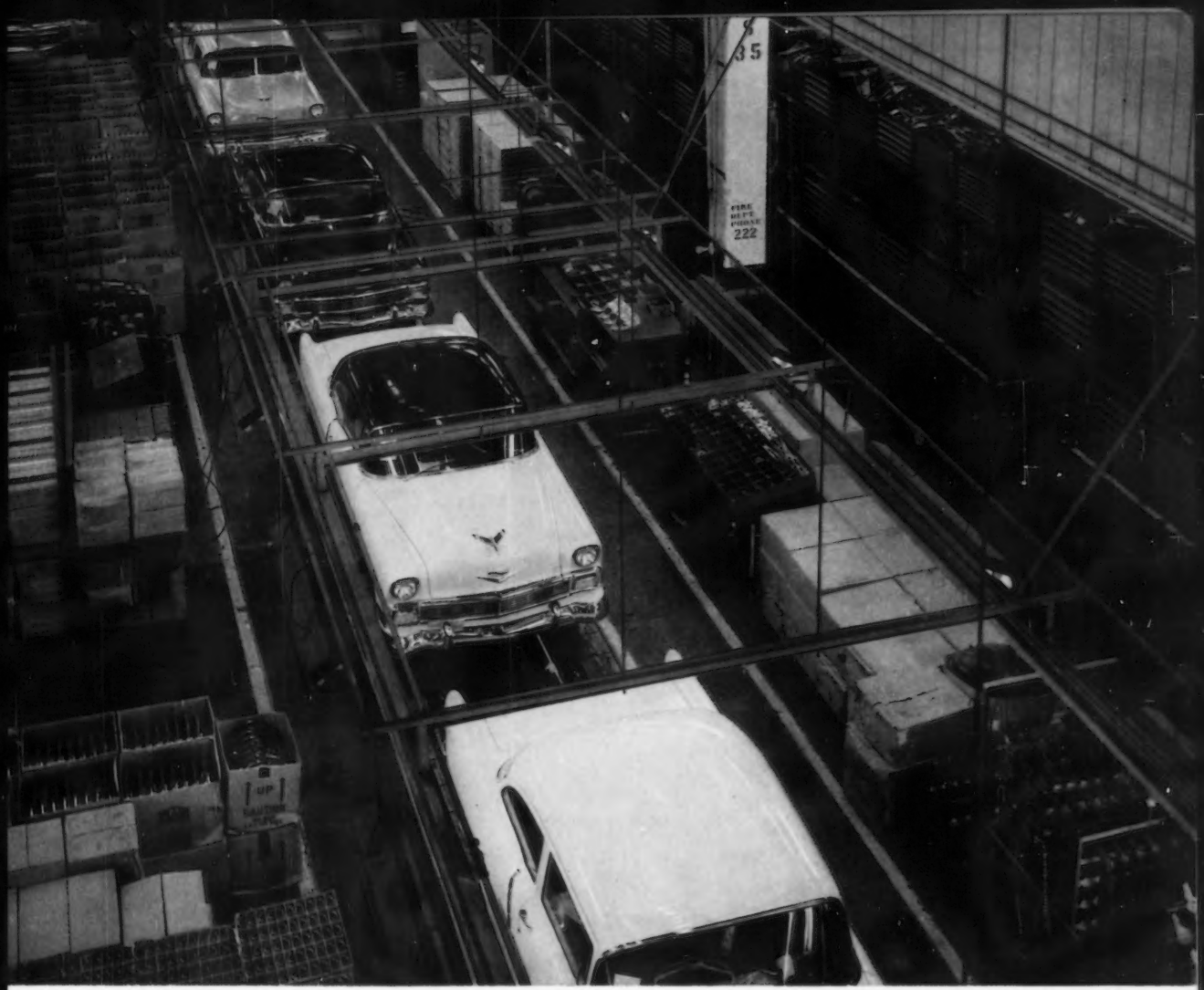
O'Connor Elected to New Post

John W. O'Connor has been elected vice president and a director of Paper Corp., of United States and will make his headquarters at the company's executive offices in New York. Mr. O'Connor resigned on May 1st as vice president director of the Fitchburg Paper Co.

Kingston Promoted At Potsdam Mill

Clarence Kingston has been appointed paper mill superintendent of the Potsdam N. Y. mill of the Nekoosa-Edwards Paper Co. He had served as staff assistant to the resident manager since May 1958.

It was announced at the same time by Burt Kassing, resident manager, that L. G. McGowan was appointed assistant superintendent.



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J. S. Oatman

H. M. Henry

Ben-Mont Appoints Two To New Posts

James S. Oatman has been appointed director of purchasing, and Harry M. Henry named purchasing agent of Ben-Mont Papers, Inc., Bennington, Vt. Ben-Mont, a subsidiary of the Dow Chemical Co., manufacturers giftwrap papers, foil ribbons, tags, seals and Christmas Saran Icicles.

Mr. Oatman has been with Ben-Mont 30 years. He was formerly manager of planning and scheduling, and for many years was assistant to the general manager of Ben-Mont.

Mr. Henry was formerly purchasing agent for the Dobeckmun Co., Cleveland, with which Ben-Mont is affiliated.

Lamb Named Manager USE Kellogg Division

Charles M. Lamb, Jr., has been appointed manager of the Kellogg Container Division of the United States Envelope Co., at Springfield, Conn. Mr. Lamb assumes this responsibility in addition to his duties as manager of the Kellogg Envelope Division.

With the recent retirement of Walter Krall as manager of the Kellogg Container Division, the following additional management changes have been made by United States Envelope:

Leonard C. Sarapas becomes assistant manager under Mr. Lamb, to handle mainly the operations of the Kellogg Container Division. Mr. Sarapas, who previously was assistant superintendent, will work closely with R. Kenneth Stone, who continues as sales manager of the Container Division.

Frank T. Knapp has been appointed assistant superintendent to help handle production operations of the container and envelope divisions.

Container Corp. Purchases Arizona Container

Purchase of the Arizona Container Corp., Phoenix, has been announced by Container Corporation of America. The new facility will be operated as a wholly owned subsidiary.

The Arizona Container plant will continue to serve its present customers and, in addition, will help supply customers in the Phoenix area now served by Container Corporation's corrugated shipping container plant in Los Angeles.

With this latest acquisition, Container Corporation is currently operating 71 production facilities in 24 states.

Sherman Paper Announces Eastern Div. Appointments

Sherman Paper Products Corp., Newton Upper Falls, Mass., has announced the appointment of Kermit Greene as vice president and assistant general manager of Eastern Division. Mr. Greene joined the Sherman organization in June 1951 as technical director. For the past two and one-half years, he was sales manager, Eastern Division.

Stanley A. Ferbank, director of management engineering, was appointed comptroller of the Eastern Division. Mr. Ferbank joined Sherman Paper in May 1958 as staff assistant to the operations vice president. In October of 1958 he was appointed director of management engineering of the Eastern Division.

Eino O. Fimlaid is secretary of the corporation and will be general corporate comptroller, coordinating financial operations of all divisions.

Norton L. Sherman, who for the past two years has assisted production control in the purchasing of raw materials and supplies, has been appointed director of purchasing—Newton operations.

Flexible Offset Sheet Developed for Text Books

A new, highly flexible offset sheet that allows pages of side-stitched books to lie flat has been developed by New York & Pennsylvania Co. The new sheet is named "Pen/Flex Offset."

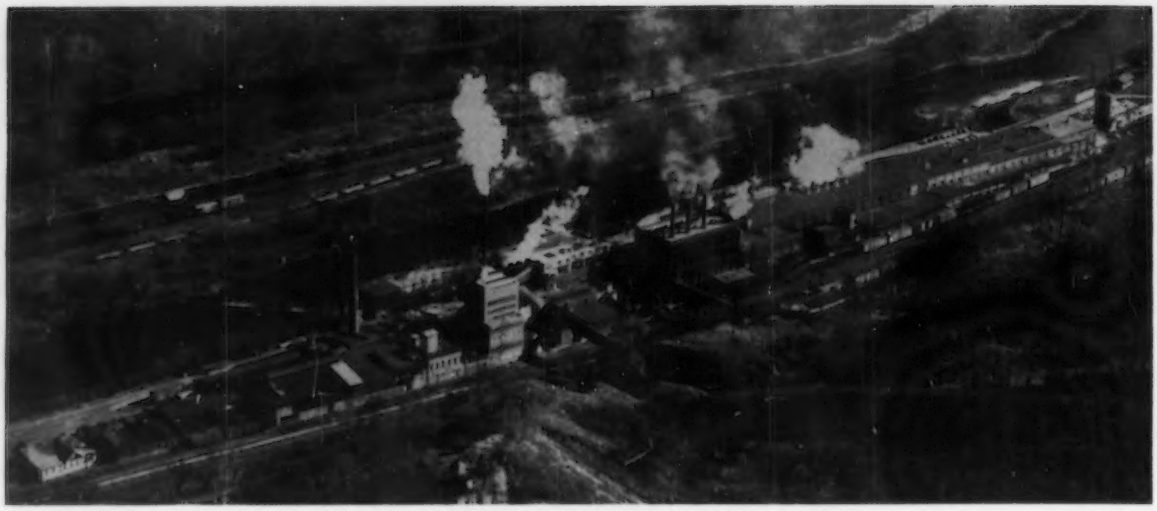
The unusual degree of flexibility results from a re-arrangement of pulp structure of the normal offset sheet combined with changes in procedure on the paper machine, itself and a re-apportionment of various types of sizing used in processing, reports the company.

The need for this special offset sheet became apparent as the result of a survey conducted by J. C. Winston Co., Philadelphia textbook publisher. The survey of grade school students, teachers, and administrators revealed a major shortcoming in books printed on regular offset paper. Those which were bound by side-stitching had a tendency to spring up. This meant that students working with such books had to use one hand to hold the book open.

Continental Can Ups Mills

Beaven W. Mills has been appointed Eastern regional sales manager for folding cartons in the Boxboard & Folding Carton Division of Continental Can Co., it was announced by Otto M. Miller, general manager of the Division's Eastern region. Mr. Mills will maintain his headquarters in the Division's New York offices.

Formerly sales manager, gravure, Mr. Mills replaces O. R. Gibbons who has resigned from the company.



Aerial view of The Mead Corp.'s paperboard mill, the Heald Division at Lynchburg, Va.

First Large NSSC Recovery System Proves Out

One of the earliest semi-chemical pulp mills now demonstrates the success of the Mead process.

The semi-chemical liquor recovery plant of Mead Corp.'s Heald Division at Lynchburg, Va., which recently attained full production, is the first large commercial size unit on neutral sulphite waste liquor. The Lynchburg mill has a 175 ton per day neutral sulphite semi-chemical pulp mill and a 285 ton per day paper mill making corrugating medium and paperboard specialties.

The Heald Division is one of the key operations of the Mead Corp. which is one of the 10 leading paper and paperboard companies in the nation. The Mead Corp. produces paper, paperboard, technical papers, wood pulp, corrugated shipping containers, folding boxes, and multiple packaging cartons at 36 operations in 14 states. Sales in 1958 exceeded $256 million.

Although the company does not at present have plans to increase production of its principal products at Lynchburg, the new equipment, however, has been designed to handle waste approximately 65 per cent greater than that now coming from the mill.

The recovery plant, built at a cost of $3 million, is contained in an eight-story building. The process used is Mead's own patented system developed by the company's research and development department after years of extensive research and testing on pilot plant operations.

Construction of the plant was carried out during 1957 and 1958. Operation of the plant was started in a step-wise fashion, beginning with the washers and evaporators in June 1958, the recovery furnace in August, and the entire plant by September 19 last. Since then, adjustments of the equipment have been in progress so that the operation would be efficient and continuous when all the trials and testing had been completed.

Chemistry of Process

In brief, the Mead recovery process consists of the following steps: spent cooking liquor is collected from the pulping operations and concentrated in a multi-effect evaporator, the liquor is further concentrated in a direct contact evaporator and then burned in a furnace to produce a molten chemical smelt consisting primarily of sodium carbonate and sodium sulphide. The smelt, in turn, is dissolved in water to produce green liquor, and the green liquor is passed through carbonation towers counter-current to a portion of the furnace flue gas. In the carbonation towers, the green liquor absorbs CO_2 from the flue gas and through a chemical reaction releases the sulphide from the liquor as hydrogen sulphide gas. The hydrogen sulphide is returned to the furnace where it is burned to SO_2 and the SO_2 in turn is used to sulphite the carbonated liquor.

An important step of the Mead NSSC recovery process is the conversion of sodium sulphide to sodium sulphite. The chemical reactions for releasing hydrogen sulphide gas from sulphide solutions through the use of acids or acid salts and oxidation of hydrogen sulphide to sulphur dioxide by burning are well known. The Mead process makes the above reactions commercially feasible. This has

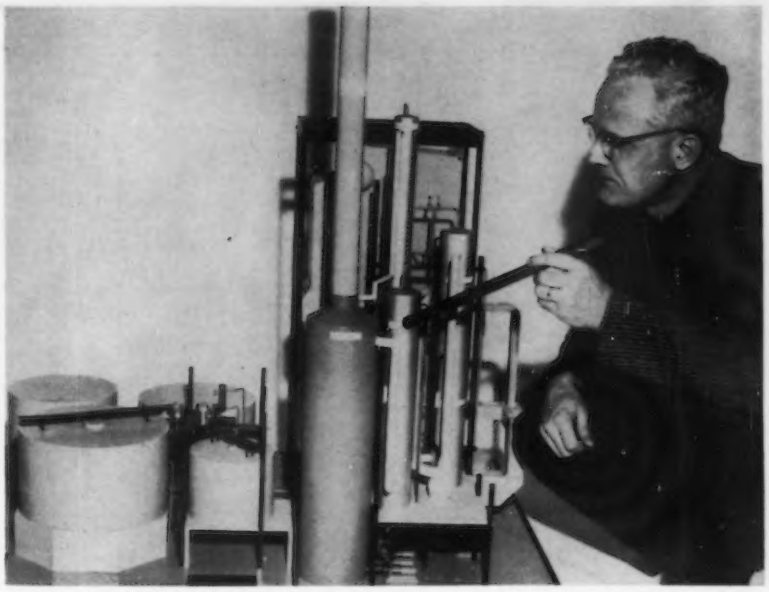
been accomplished through design of apparatus, the close study of the chemical and physical principles involved, the provision for coordination between the various steps of the process, and the application of an unique flow arrangement in the carbonation system.

Liquor Recovery and Evaporation

In the Lynchburg operations, chemicals for recovery are gathered from two sources: digester blowdown liquor and the final wash liquor from a two-drum, four-stage countercurrent washing system. The blowdown liquor is passed through a rotary filter before being pumped to a black liquor storage tank where it is combined with the filtrate liquor from the washer operation. The pulp removed by the filter is pumped to a storage chest where it is blended with the other pulp prior to washing.

From the weak liquor storage tank, the black liquor, which contains approximately 10 per cent solids, is pumped to a quadruple-effect forced-circulation evaporator where the solids content is raised to 50 per cent and it is then discharged into a heavy black liquor storage tank.

The heavy black liquor is next pumped through spray nozzles into the Venturi scrubber where it is mixed in the exit furnace gas stream and concentrated. The black liquor is further concentrated and separated from the furnace gas in the cyclone separator. Black liquor, at 65 per cent solids, from the cyclone separator is eventually fed to the furnace and burned.

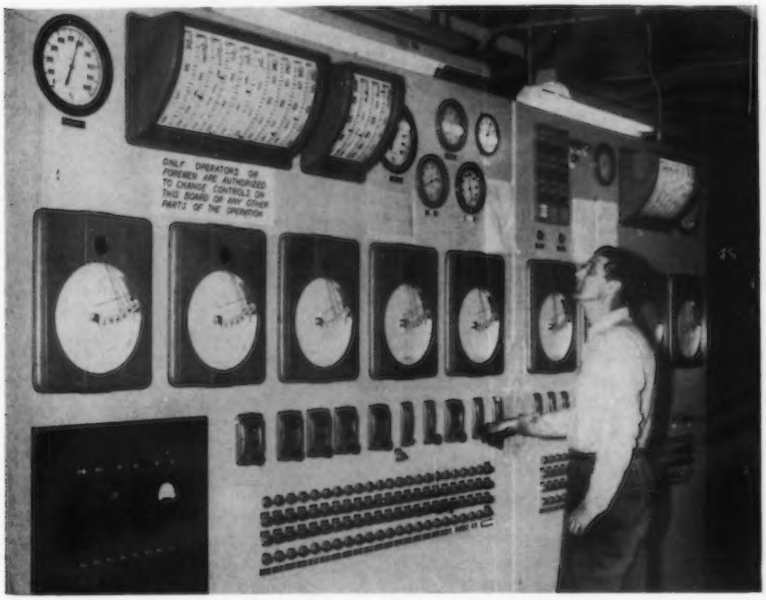


Scale model of neutral sulphite recovery plant shown by Paul Hardesty, who supervised start-up of new operation.

Underneath the separator are two turbine driven black liquor recycling pumps, one of which is used as a standby unit. The pumps receive liquor from the cyclone sump, pump it through strainers, and then to wash nozzles on the cyclone separator and scrubbing nozzles on the Venturi scrubber. The rejects from the screening operation are flushed into the ash mixing tank.

Also receiving liquor from the cyclone separator sump is a second pair of pumps (one a standby) which pump the black liquor through a direct contact steam heater and thence through a spray nozzle into the furnace. The flow to the furnace is modified by two branch lines which bleed off small quantities of the liquor. The first branch line is located directly ahead of the steam heater and delivers black liquor for flushing furnace ash from the ash hopper to the ash mixing tank. The second branch line is directly ahead of the spray nozzle and is used as an aid in adjusting the liquor flow to the furnace. The line bleeds off to the ash mixing tank. The ash mixing tank drains into the sump of the cyclone separator.

Black liquor flow to the system from the storage tank is governed by a control valve operated by a float in the cyclone separator sump. A level is also maintained in the ash mix tank by means of a float which regulates the discharge from the mix tank to the cyclone separator.



Control panel for operation of the Mead's process at Lynchburg, Va.

Liquor Burning

Concentrated black liquor is burned in a conventional Babcock and Wilcox Co. furnace with boiler which operates at 600 pound pressure and 750°F. steam temperature. Since the heat value of neutral sulphite liquor is markedly lower than kraft liquor, with expectations of even lower organic content as higher yield pulping is employed, small

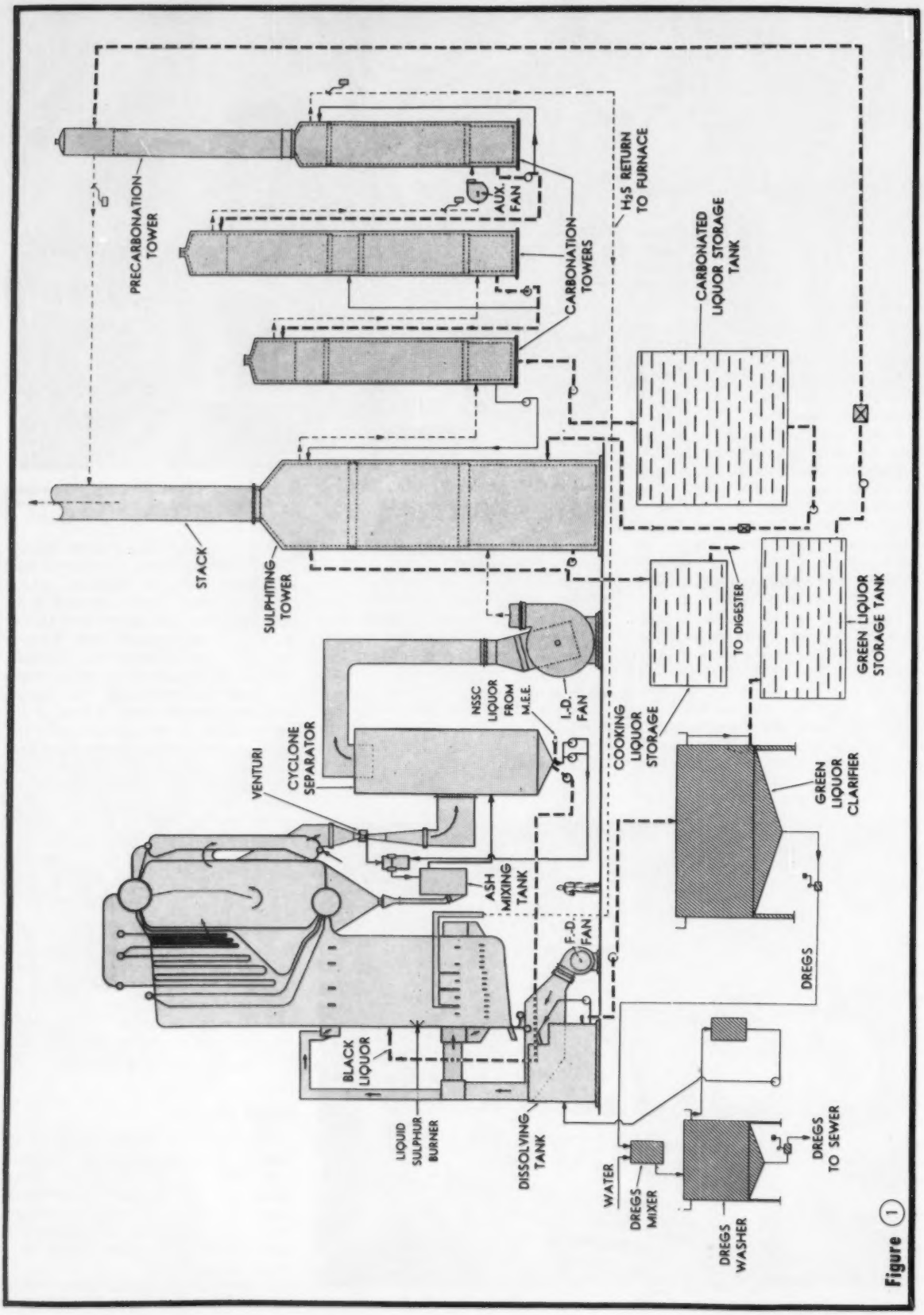

PRECARBONATION TOWER
AUX. FAN
CARBONATION TOWERS
H_2S RETURN TO FURNACE
CARBONATED LIQUOR STORAGE TANK
STACK
SULPHITING TOWER
TO DIGESTER
GREEN LIQUOR STORAGE TANK
NSSC LIQUOR FROM M.E.E.
I.D. FAN
COOKING LIQUOR STORAGE
CYCLONE SEPARATOR
VENTURI
GREEN LIQUOR CLARIFIER
ASH MIXING TANK
F.D. FAN
DREGS
BLACK LIQUOR
LIQUID SULPHUR BURNER
DISSOLVING TANK
WATER
DREGS MIXER
DREGS WASHER
DREGS TO SEWER

Figure 1

Control panel for operation of the Mead's process at Lynchburg, Va.

quantities of auxiliary fuel are required to stabilize furnace operation. Various types as well as methods for supplementary fuel addition are being investigated to economically stabilize the furnace and permit maximum furnace reduction which presently ranges between 85 and 90 per cent.

Convection passes including screen, superheater, generating, and economizer banks are satisfactorily cleaned by Diamond Power Specialties type IK soot-blowers; however, occasional hand-lancing is necessary in the screen section due to the tenacious nature of the deposits.

Boiler controls are of conventional design and have proven quite satisfactory. A constant burning rate has proven to be the key to smooth, efficient, over-all unit operation; and it was found close evaporator solids control is essential to maintain constant burning solids. Boiler outlet excess air is maintained at 20 per cent to insure complete combustion with hourly Fyrite CO_2 and O_2 readings taken by the operator.

Initially, plugging of black liquor lines was a major problem until liquor was properly screened, strained, and stored at temperatures above 180°F.

Dissolving the Smelt

Molten smelt from the furnace is dissolved in water to form green liquor consisting primarily of sodium sulphide and sodium carbonate. The concentration of the green liquor is automatically controlled by a density meter which regulates the amount of weak make-up liquor added to the smelt tank. Fresh water make-up is added to the process through a float control valve operating from a wash water storage tank which is used for supplying water for flushing the carbonation towers during shutdown periods. The water from the tower flushing is returned to the tank and then used as make-up liquor for the process.

The need for make-up liquor at the smelt tank sets up a series of demands which ends with the introduction of fresh water into the system. The smelt tank demand is met by weak liquor pumped from a surge tank; as the level drops in the surge tank, a float opens a control valve which permits weak liquor to be pumped from the wash water storage to the dregs mixer tank; the dregs mixer overflows into the dregs washer and the washer in turn overflows into the surge tank. Thus the entire addition of make-up water to the process is automatically controlled.

Exterior view of eight-story, $3 million neutral sulphite recovery plant at The Mead Corp.'s Heald Division.

Green liquor from the smelt tank is drawn off through an overflow line and pumped to a green liquor clarifier, the clarifier in turn overflows to the green liquor storage tank. Dregs from the clarifier are pumped periodically by means of a diaphragm pump with timer to the dregs mixer tank. From the mixer tank, they flow by gravity to the dregs washer and from there are pumped to the sewer by means of a diaphragm pump with timer similar to the ones used on the clarifier.

Green Liquor Conversion

The stored green liquor is pumped to the top of the precarbonation tower where it flows downward counter-current to a stream of a portion of the carbonating gas. In the precarbonation tower, the highly alkaline green liquor absorbs both hydrogen sulphide and carbon dioxide from the gas stream. At the base of the precarbonation tower, the carbonation gas stream is divided about 20 per cent of the flow going to the precarbonation tower and the remainder to the furnace. Hydrogen sulphide in the gas to the furnace is burned to SO_2 which is used to sulphite the carbonated liquor.

In the main carbonation towers, the partially carbonated green liquor continues to flow counter-current to the carbonating gas. The liquor always entering at the top and leaving at the bottom of each tower. At Lynchburg, there are four main carbonation towers each 6 feet in diameter and having a total packed height of 72 feet. The precarbonation tower is 4 feet in diameter and 35

feet high. The precarbonation tower is packed with 2-inch Raschig rings and the main towers with drip point grid tile. As the green liquor continues to absorb CO_2, the pH of the liquor drops and the chemical equilibrium relationships favor the release of H_2S from the liquor. The liquor composition as discharged from the carbonation system is principally sodium carbonate and bicarbonate.

The carbonated liquor is pumped to a storage tank and from there pumped to a sulphiting tower. The sulphiting tower is 12 feet in diameter and 45 feet high. It contains 15 feet of drip point grid tile packing and a 9-foot high sump. The carbonated liquor enters near the top of the sump and is recycled over the drip tile packing where it comes in intimate contact with the exit flue gas from the furnace. Sulphur dioxide is absorbed from the flue gas and reacts with the carbonate to form sodium sulphite, the chemical used for cooking.

A flow sheet for the process is presented in Figure 1.

Addition of Make-up Chemicals

Sulphur and soda ash are the two make-up chemicals added to the system. Sulphur is received in a dry bulk form, liquefied in a steam-heated storage tank, and then pumped to the front side of the recovery furnace where it is sprayed and burned to SO_2.

Soda ash is also received in dry bulk form. It is unloaded pneumatically into a soda ash dissolving tank and then pumped to the carbonated liquor storage tank where it is blended with the recovered carbonated liquor.

Manpower

Manpower requirements for operating the entire system consists of one operator and two assistants. The operator is stationed in the instrument control panel room and is responsible for the performance of the evaporator, furnace, carbonation, and sulfiting operations. One assistant is assigned to attend to the mechanical functioning of the furnace. The other assistant watches all of the other operations.

A laboratory helper is employed to do complete, daily analyses on green, carbonated, and sulphited liquors.

Chemical Control

Chemical control of the process is maintained through routine tests on black, green, carbonated, and sulphited liquors.

Black liquor control consists of density measurements on liquor to and from the multi-effect evaporator, and the liquor fed to the furnace. Complete black liquor analyses are made by the Babcock and Wilcox Co at periodic intervals.

Complete green liquor analyses are performed on a once-per-day basis. These consist of samples from the smelt dissolving tank and the green liquor fed to the carbonation system. The first sample is representative of current furnace performance and the second sample is used as a basis for estimating tower efficiency.

Sulphited liquor samples are taken from the sulfiting tower and complete analyses made on a once-per-day basis. Abbreviated test procedures are used on sulfited samples taken from storage tanks to determine the chemical charge to the digesters.

Additional tests which are made and used as operational guides are pH test on the sulphiting tower, test of exit furnace gas for CO_2 and O_2, test of exit gas from carbonation system and stack discharge to atmosphere for H_2S, and the testing of carbonated liquor for residual hydrosulfide.

Carbonation Tower Performance

One distinguishing step of the Mead recovery process is the carbonation step, and the outstanding feature of the carbonation step, states Mead, is the ease and simplicity of its operation. Little operating attention is required and mechanical difficulties are few. Operation of the system is controlled through simple adjustment of liquor and gas flows through the towers. Gas flow adjustment is guided by the presence of H_2S in the exit gas from the precarbonation tower. If a trace of H_2S appears, the gas flow is adjusted so that more of the carbonating gas is returned to the furnace and less is used in the precarb tower.

The amount of green liquor fed to the carbonation towers is governed by the amount of residual hydrosulphide in the carbonated liquor. At the present time operating standards have been set to limit the concentration of hydrosulphide to one-tenth of an equivalent (approximately 5 grams/liter as NaHS); however, it is hoped that eventually, essentially all of the sulphide will be removed.

At present, the carbonation system at Lynchburg is underdesigned with respect to the other equipment in the recovery system. The carbonation system was designed for only 175 tons of pulp production whereas the furnace and remaining equipment were designed for 250 tons of pulp production. The towers were designed for 175 tons with the hope that improved performance might be gained in full-scale operation which would permit processing up to 250 tons. Space was provided in the plant layout to permit installation of an additional carbonation tower if the need did arise.

In addition to undersizing the carbonation tower tonnage-wise there were several design diversions from pilot plant work. For full-scale operation, drip tile were substituted for the Raschig rings which were used in the pilot plant; gas velocities through the towers were increased to 4 to 5 feet per second versus the 1 to 2 feet per second used in the pilot plant; and lastly the full-scale operations were provided with recycling liquor pumps which were not used in pilot plant operations. Steps are now being taken to install additional tower capacity in the system.

To operate the towers, approximately 25 per cent of the exit furnace gas is used with about 80 per cent of the carbonating gas returning back to the furnace and 20 per cent passing out the stack through the precarbonation tower.

Operating Difficulties

Incorporated within NSSC recovery systems are certain basic difficulties of one type or another which require very careful control. Lynchburg was no exception. However, through experience gained in the handling and controlling of liquor flows, improved design, and improved coordination between the interdependent operational steps, the problems are being eliminated and a quite acceptable chemical operation is evolving. Processing of Lynchburg NSSC spent cooking liquors required special handling techniques and equipment.

1. The liquors contain potential gummy residues which precipitate out and cause plugging unless proper attention is given to agitation, temperature, screening, and pH control.

2. The liquors are corrosive and require the use of stainless steel, tile, resin, plastic, and other resistive types of materials.

3. The black liquor is low in B.t.u. value which fact means that special burning techniques must be adopted and means provided for effective burning of auxiliary fuel. The importance of the burning operation cannot be over-emphasized in the Mead process. Both the carbonation and sulphiting steps of the process are tied in closely with furnace operation. Therefore, it is quite vital that

73 WORDS

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good stable burning conditions be consistently maintained.

4. Another factor which made the processing of liquors somewhat a problem was the need for operating at high concentrations in order to obtain optimum plant performance. High liquor concentrations complicate processing requirements inasmuch as plugging problems become more acute, temperature control becomes more critical, flow control and measurement becomes more difficult, and corrosion problems become more severe.

5. Safety is a fifth factor which has necessitated a cautious and slow approach to optimum plant performance. Recognizing the hazards involved in processing such dangerous gases as H_2S and SO_2, and hot, corrosive materials such as black, green, carbonated, and sulphited liquors, all equipment changes were made only after careful consideration of the possible consequences.

6. Air pollution problems were a serious consideration which hindered rapid establishment of peak plant performance.

7. Lastly, the complex chemical and physical reactions and equilibriums involved in the burning, smelting, carbonating, and sulphiting operation made the achievement of good, efficient chemical recovery a challenge. The pH range through which the recovery liquors pass, together with hydrolysis, lends itself to the formation of many molecular and ionic species which may be present. The amount of each present and the ionic activity varies with concentration and temperature. Although operations have progressed to the point where satisfactory cooking liquor can be produced on a continuous basis there is still activity directed toward the improvement of the final liquor composition. The aim is to develop more of the active and intermediate pulping constituents and lessen the amount of minor forms present. In usual pulping terminology, the major constituents are considered as active chemicals, the intermediates are buffer chemicals and the minor constituents are impurities and inerts.

For NSSC liquor Na_2SO_3 and $NaHSO_3$ would be considered active, $NaHCO_3$ and Na_2CO_3 intermediate, $Na_2S_2O_3$ and Na_2SO_4 as minor.

Stack Discharges

Two types of materials discharged through the stack have been of concern at Lynchburg. One is the carryout of material from the sulphiting tower and the other is the release of H_2S gas from the system.

The carryout of material from the tower was of concern only in the immediate parking area of the plant. A study is currently being made of means to correct this carryout condition.

The problem of H_2S release has been investigated considerably, and it has been found that the gas could originate from three major sources in the process, all of which are controllable: the gas can come from the furnace itself during periods of deficient oxygen burning, and gas can come also from the carbonation system of the precarbonation tower is not operated correctly, or it can originate in the sulphiting tower if residual hydrosulphide is present in the carbonated liquor and the tower is operated at a high pH value. The control of H_2S release has greatly improved since the initial operations. As further advancements are made in the system, it is believed that H_2S release will be minimized or eliminated.

Liquor composition for the various Lynchburg process liquors are listed in the table below expressed as percent of total sodium.

Type of Liquor

Chemical	Green	Carbonated	Sulphited
Na_2CO_3	38	70	20
$NaHCO_3$	0	15	0
Na_2S	54	0	0
NaHS	1	2	0
$Na_2S_2O_3$	3	6	11
Na_2SO_3	0	0	60
Na_2SO_4	4	7	9
	100	100	100

Black Liquor to Furnace:
65% Solids
5000 BTU/lb. Solids
19% Na_2O
12% S

PJT NEW LITERATURE

Vibratory Feeders

Illustrates many typical installations and gives a variety of application diagrams of these vibrating feeders, designed for finger-tip controlled, low maintenance feeding of even hard-to-handle bulk materials. Catalog. Syntron Co., 587 Lexington Ave., Homer City, Pa.

Application of Disk Refining

Explains the primary factors in plate design for refining groundwood and sulphite tailings, semichemical pulps, cold caustic pulp, high yield kraft, kraft rejects, waste paper and bagasse. Bulletin P-45. Sprout, Waldron & Co., Inc., 130 Logan St., Muncy, Pa.

Two Great New Diesels

Catalog BU-540 shows how these diesels serve as basic equipment for every major field of power. MS-1328 tells about the operating and mechanical advantages of the 21000 engine as the power plant for its HD-21 turbocharged diesel crawler tractor. Allis-Chalmers Mfg. Co., Milwaukee 1, Wis.

Custom Made V-Belts

Offers complete information on the use of Alligator V-Belt Fasteners with open-en V-belting; how to determine belt lengths; replacement charts for endless V-belts and points to remember when designing new drives. Bulletin V-227. Flexible Steel Lacing Co., Lexington Ave., Chicago, Ill.

Economy Line

Features three new light, low cost stainless steel valves built for heavy duty service in handling corrosives and designed to fill a service gap between ordinary lightweight valves and the most expensive. Catalog. W. G. Rovang & Associates, Inc., 1945 N. Columbia Blvd., Portland 17, Ore.

I-R Air Hoists

Describes two new lightweight air hoists, 1000 and 2000 lbs. capacity, which are unaffected by hot, corrosive or wet atmospheres and are explosion and shock proof. Form 5224-A, Ingersoll-Rand, 11 Broadway, New York 4, N. Y.

Luncor PVC Valves

Features a table giving recommendations for handling various corrosive fluids by Luncor PVC valves. Also provides installation data and detailed information on sizes, weights and dimensions of both screwed and socket end valves. Brochure 601, Lunkenheimer Co., Cincinnati 14, Ohio

Lubrication and Coolant Systems

Features illustrations of recent installations in the various industries served. Also lists component parts and specification tables. Bulletin 1451. Dravo Corp., Dravo Bldg., Pittsburgh 22, Pa.

Industry Executives Examine Expanding Horizons

Annual conference at the Institute of Paper Chemistry looks at the present position of the paper industry and asks itself "where should we be?"

More than 250 members of the pulp and paper industry and allied fields congregated at the Institute of Paper Chemistry in Appleton, Wis., on May 7-8. The occasion was the 23rd annual Executives Conference, where visitors met with the staff of the Institute, viewed the facilities, and attended several panel discussions.

Among the more interesting—this is not to say the others were not interesting—of the 31 tours were the forest genetics research, the Lou Calder Biochemistry laboratory, the IBM 610 computer facility, and the Dard Hunter paper museum.

Guest speaker for Thursday evening's dinner meeting held at the North Shore Golf Club was Paul B. Sears. Dr. Sears is chairman of the conservation program at Yale University and is past president of the American Ass'n for the Advancement of Science. He presented some rather wide-ranging "Perspectives on Conservation," defining conservation as the wise use of not only our natural resources but all wealth; relating conservation to any one civilization's pattern of culture; and noting that business is assuming more and more of the responsibility of conservation.

E. W. Schoenberger, dean of students at the Institute, defined the theme of the two-day session when he noted at Thursday afternoon's panel discussion, that horizons are never-ending, are never still, that they are always encircling us, but that we never really meet up with them. In respect to them, "where are we now?" he asked, "where should we be, and what is holding us up?" Each of the panelists attempted to answer these criteria in his respective fields of interest. A few of their remarks are condensed below:

Expanding Horizons

D. J. MacLaurin, head of the pulp and papermaking section, stated that greater understanding of pulping processes is needed. More utilization of wood fibers, especially, should be encouraged as well as investigation into the use of synthetic fibers. Continuous and multistage continuous pulping processes will soon be the mode. Studies into optimization of pulping are a must.

The fourdrinier will be the mainstay, remarked S. T. Han, of the chemical engineering group, but other methods of formation, like the Inverform, the Stevens former, and the vacuum former, will make inroads into the papermaking process. There will have to be an increase in the quality of both machinery and operations. The art of papermaking still outstrips the technology of papermaking, but there will be greater advances in the latter on the horizon.

R. C. McKee considered the converter field, especially packaging, as one of the more important vistas. The use of paper products in combination with other materials cannot be ignored, else paper may lose out to a large extent. Packaging will assume new forms and designs.

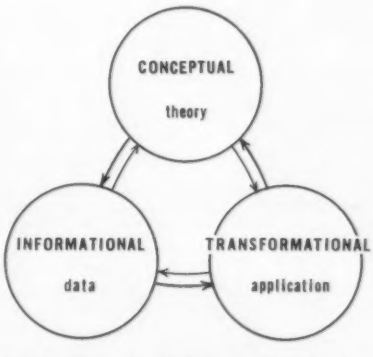
Physical chemistry, represented by J. W. Swanson, has microscopic horizons—in the study of molecular and even subatomic structures. The polymers of cellulose, and other constituents of the papermaking fibers must be exploited to a higher degree.

More intense study into the cell wall structure, in the hemicelluloses, and extraneous components, lies on the horizon for the organic chemist, commented I. A. Pearl. He added by-product utilization and a comprehensive understanding of lignin to this list.

The chief of the biology group, W. M. Van Horn, iterated forest genetics, microrganisms, and tree improvement as requiring the attentions of investigators.

The hydrodynamics and hygroscopicity of fiber suspensions lie in the realm of the physicist, stated J. A. Van den Akker.

R. P. Whitney, by way of concluding the panel, remarked that 19 centuries have seen very little change in the fundamentals of making paper. The industry is an old one, but has avoided decay. It is a large, expanding one, and can look to an optimistic future. However, he added, there is little room for complacency, and there is need for accelerating improvement in papermaking technology, materials and product quality. The principal bottlenecks to these horizons have been ignorance, mainly a lack of understanding, and too little basic research. There has been too much neglect in the conceptual stage. As a result the other steps — informational and transformational — have lagged.



Serving as a backdrop to the Conference's theme was this design, to denote that an expanding horizon has three major stimulii. A new "thing" may originate at any stage and may evolve, in either direction, through the other stages.

Horizons in Applied Mathematics

Applied mathematics was given special emphasis by a Friday morning panel, largely because of the importance it is assuming in research, design, and operations. A student represented each of these three areas and related specific examples where applied mathematics is basic: R. L. Jones (research), interpretation of

Roy Whitney

viscosity and the mathematics of molecules; W. T. Myers, Jr. (design), paper machine drainage; S. H. Dorcheus (operations), automatic process control.

E. F. Thode, chemical engineering group, summarized the remarks of the panel by concluding that applied mathematics is the language of the basic physical sciences, a common language that is most useful but has not kept pace with the other sciences.

Horizons of Education

Rounding out the morning activities, R. P. Whitney stated the education is a new, changing horizon. He explained that the quality of education is not what it should be, and that there was perhaps an overemphasis of science. Insight and understanding should be taught at the expense of a technological education, if necessary. He expressed confidence that the Institute is meeting the challenge of these vistas.

G. D. Jernegan spoke on the "continuing education" activities at the Institute in post-doctorate work and seminars. He recalled that there are 16 research fellows (from 13 foreign countries) and 53 special students (from 16 companies). In cooperation with the National Science Foundation, the Institute was offering to college instructors, seminars in biology and plant chemistry.

Three abstracts of doctoral research reports were presented by their authors: L. R. Bushe, suggested an improved method of determining the lignin content of wood over the present TAPPI method. He employed spectrophotometry after isolating the lignin through ball-milling at lowered temperatures. H. D. Wilder reported on the mechanisms of water removal from pulp slurries. R. W. Detrick stated, in short, that his study on the oxidation of wood pulp was aimed at the possibility of producing specialty pulps with defined, controllable amounts of sugars.

Pioneer Research Program

It was announced during the panel discussions that the Institute was planning a program of pioneer research. David Luke, vice chairman of the board of trustees of the Institute and president of West Virginia Pulp and Paper Co., said that the program will be supported by pulp and paper companies on a voluntary 5-year basis. He added that research grants will be awarded to laboratories, universities, and associations on the basis of intellectual enterprise and competence regardless of geographical location.

Annual Report of the President

John Strange, president of the Institute, reported that the student body numbers 71, a 10 per cent increase. This is due mainly to lower mortality and higher enrollments. However, a disturbing factor he said is the length of time it is requiring for graduate students to complete their theses. He noted that two-thirds of the student body are married; the ninth married student dormitory was completed last year, and a tenth will soon be needed.

In the matter of research, this has reached a new high statistically. Forty-eight projects were completed in 1958, fifty-two new ones were initiated, and 109 remain on the active list. However, he felt that too much research was aimed at improving old ideas instead of originating new and different approaches.

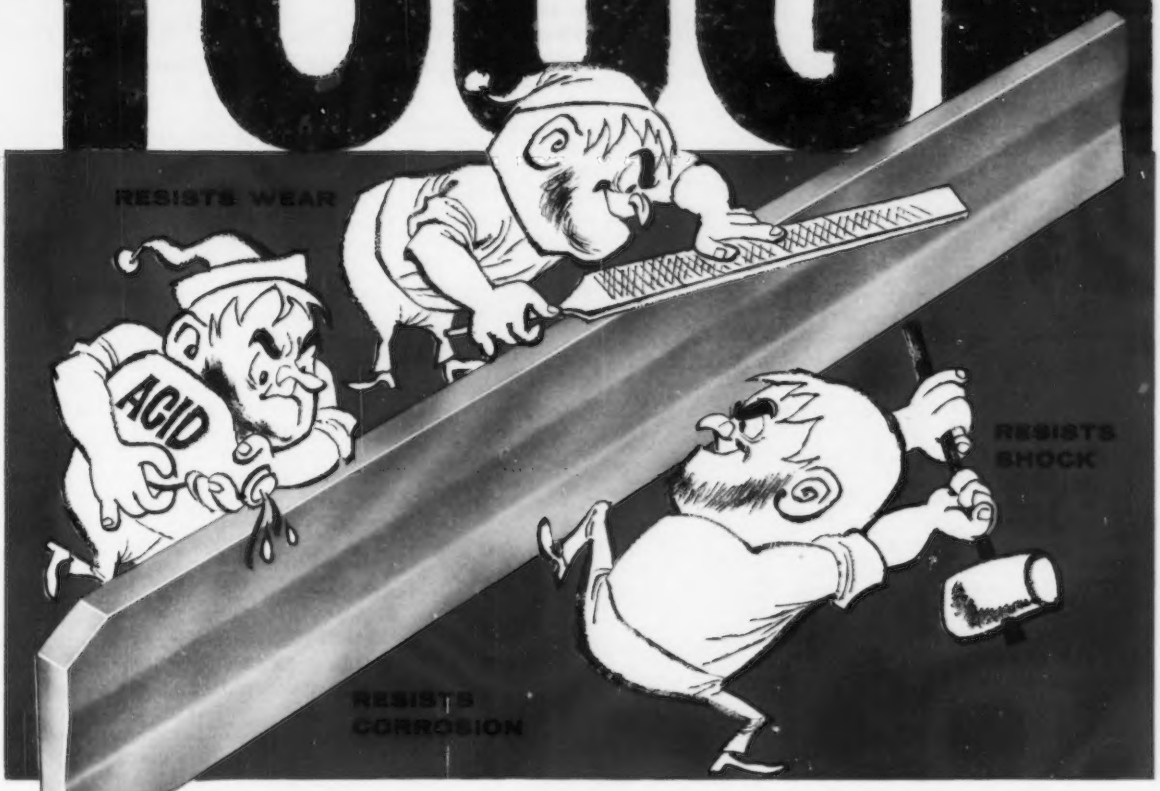
John G. Strange

The library has become one of the most significant ventures of the Institute. It is one of the largest specialized libraries with 21,000 volumes with 850 being added per year. It stocks over 400 periodicals. The bulletin now lists 8,000 abstracts per year, more than twice that three years ago.

Mr. Strange concluded his remarks by listing the needs of the Institute: money—naturally—for a plant improvement program, and scholarships and loans (funds are so low that the Institute has considered digging into its reserves to augment the latter category); a more satisfactory system of communication with the membership; and greater imagination and vigor in educational and research pursuits.

"If you didn't know what I meant by a 'Pick Test,' Horton, why did you even attempt it?"

TOUGH



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New Specially Tailored Coating Latex

New high-shear viscometer has led to a controlled rheology latex—key to higher solids formulations.

Harry Lowell,
Dewey & Almy Chemical Div.,
W. R. Grace & Co.

Attendants at the 10th TAPPI Coating Conference in Boston will witness a demonstration of a new type of high shear viscometer at the laboratories of the W. R. Grace & Co. Dewey & Almy Chemical Div. This viscometer has made possible the development of a new latex for paper coating. Darex Latex C, by controlling the rheological or flow properties of coating colors, makes it possible to produce coatings having exceptionally low pattern at higher solids content than was previously possible.

The behavior of paper coating colors with respect to flow or viscosity is very complex. As the coating mixture or color, as it is called, is worked, the viscosity changes. How the viscosity changes as it passes through a nip and what makes it change are all important.

Controlling the rheological properties of a coating color has a beneficial effect on almost all the properties of coated paper. Differences in the pattern produced are clearly shown in the accompanying photomicrographs of super-calendered samples of coated paper.

These samples were coated with identical formulations. Only the latex component of the binder was changed. The coating which used "Latex A" failed to completely cover the paper and portions of the coating were loosely spread over the surface of the paper during supercalendering. The paper coated with "Latex B" showed more uniform coverage, but even supercalendering failed to flatten the high peaks produced at the coating nip. Only "Latex C," developed by Dewey and Almy research, showed a low, uniform pattern.

Harry N. Lowell

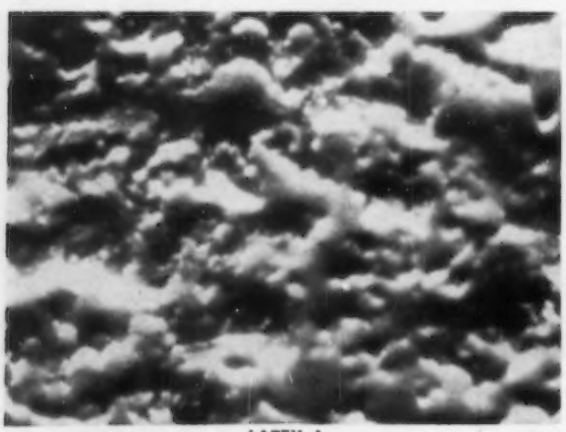
Following graduation from MIT in 1951, Mr. Lowell joined Bethlehem Steel Co. in its commercial research department. After service in the U.S. Navy as a Lieutenant, he joined Dewey and Almy, where he is now in charge of product development on paper coating latices, in 1956.

Low Pattern

Low pattern plays an important role with a number of other properties. The smoother surface means better ink coverage, higher ink mileage, more uniform ink receptivity and lower printing pressures for the printer. The more level surface means higher gloss with a given amount of supercalendering or less supercalendering for a given gloss reading. Since supercalendering has an adverse effect on the optical properties, high opacity and higher brightness will result.

High Solids

Of perhaps even greater significance than low pattern is the possi-



LATEX A

LATEX B

bility of obtaining higher solids content formulations through the use of latex to control the rheological properties. In the formulations used to coat the samples shown in the photo-micrographs, 35 per cent of the binder was latex. Latex C could be used at 5 per cent higher solids for similar coatings. Five per cent higher solids means 12½ per cent less water to dry. This may give up to 12½ per cent faster coating speed, particularly in on-machine coatings, where drying capacity is frequently the limiting factor on coating speed. When compared with natural binders such as starch, casein or protein, the increase in solids content may be even greater. Higher solids also improve pigment binding in otherwise identical formulations.

First model of high shear viscometer developed for and with Dewey and Almy by Dr. Edward W. Merrill. A commercial model of this viscometer, known as the Merrill-Brookfield high-shear viscometer, is being developed by Brookfield Engineering Laboratories of Stoughton, Mass.

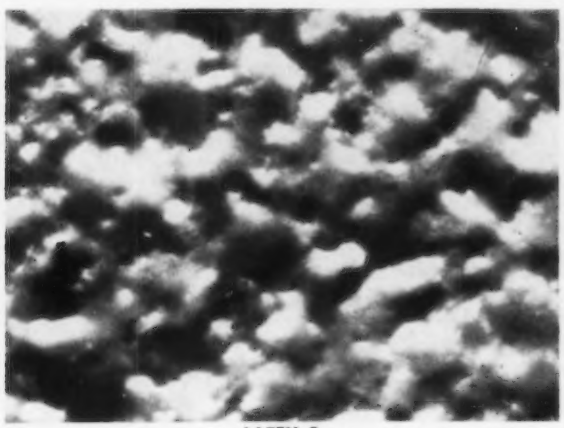
Controlled Rheology Latex

The three photomicrographs demonstrate the important effect that the latex has on the rheological properties of otherwise identical formulations. What is surprising is that these latices were practically identical to each other in a number of important properties including the following:

Styrene to butadiene ratio	65/35
Solids	48/1%
Mechanical stability, minutes	20
Particle size range, microns	0.15-0.20
Viscosity of latex, cps @ 25°C	25
Surface tension, dynes/cm	35

Dewey and Almy research has found that changing the concentration of even one ingredient from .002 to .003 has had an effect on the pattern which would correspond to the difference between Latex B and Latex C. When it is considered that there are some eight to ten ingredients in the latex and the type, the concentration, and the manner in which these materials are added have an important effect on the rheological behavior, it is possible to have some appreciation for the meaning of "controlled rheology" latex.

University of Maine roll coater by Dewey and Almy in studies of the effect of latex variables on rheology of paper coating colors.



LATEX C

Photomicrographs taken at x80 magnification of supercalendered samples of paper coated on a print roll coater at 65 per cent solids. Formulations, which were identical, except for the latex, were as follows:

Clay	75.0
Calcium carbonate	25.0
T.S.P.P.	0.2
Starch	11.7
Latex (solids)	6.3

A New Viscometer

What made it possible for Dewey and Almy to develop latex with controlled rheology? A large measure of credit is attributed to the use of a unique viscometer developed for and with Dewey and Almy by Dr. Edward W. Merrill of the Massachusetts Institute of Technology. A commercial model of this viscometer, known as the Merrill-Brookfield high shear viscometer, is being developed by Brookfield Engineering Laboratories.

Conventional high shear viscometers have several significant limitations. They cannot approach the rates of shear found on most commercial coaters. They cannot adequately measure thixotropy, the all important breakdown in viscosity with time. In addition they do not possess a number of engineering refinements which are required for the accurate measurements of the flow properties of coating colors.

With the Merrill-Brookfield high

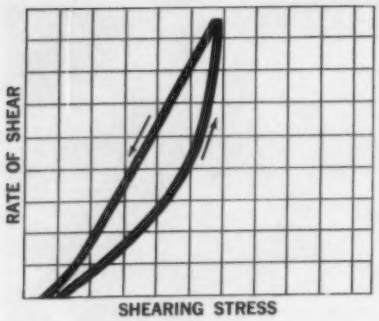


Figure 1—Typical rheogram for coating color containing Latex C at 65 per cent solids.

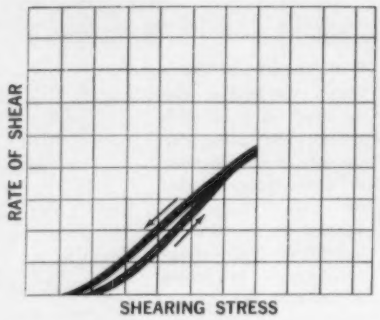


Figure 2—Typical rheogram for coating color containing Latex A at 65 per cent solids.

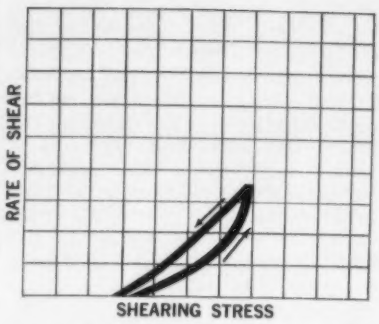


Figure 3—Typical rheogram for coating color containing Latex B at 65 per cent solids.

shear viscometer, rates of shear up to six times higher than conventional viscometers are possible which more closely approach actual coating conditions. Since time can be used as an in-put into the electronic recorder, plots of viscosity vs. time may be made. The circulation of thermostatically controlled cooling water in the rotor and stator eliminates changes in viscosity due to temperature.

Why a New Viscometer?

If coating colors behaved like water or oil, elaborate instruments would not be required to measure viscosity. A single point measurement with a conventional rotational, capillary or falling ball viscometer would be entirely adequate. Coating colors, however, are much more complex. As the rate of shear increases, i.e., the rate at which the color is worked, the apparent viscosity changes. The way the color is formulated and particularly the type and amount of latex used determine whether the apparent viscosity will increase or decrease with increasing rates of shear.

On a commercial coater, such as print roll, trailing blade or air knife, it is desirable to have the apparent viscosity as low as possible at the coating nip for a given solids content. This makes it possible to obtain coatings with low pattern at high solids content. Figure 1 shows a typical plot of rate of shear vs. shearing stress for Latex C. Since apparent viscosity is defined as the shearing stress divided by the rate of shear for any point on the curve, it is desirable to have the curve bend toward the rate of shear axis to obtain low apparent viscosity at the high rates of shear found on commercial coaters.

Now look at the curves for Latex A and Latex B (Figures 2 and 3)

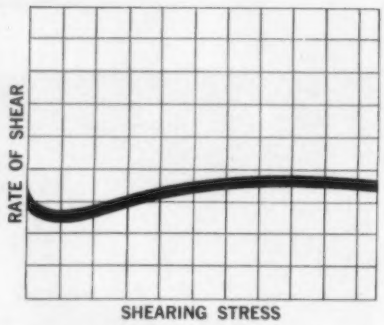


Figure 4—Changes in viscosity with time for coating color containing Latex C at 65 per cent solids at a sheer rate of about 4000 reciprocal seconds.

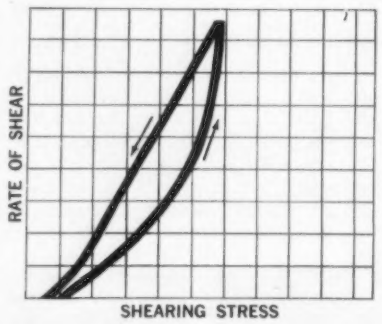


Figure 5—Rheogram for coating color containing Latex B at 60 per cent solids.

and it becomes easier to see why they produced such inferior coatings. The coating color containing Latex A showed an increase in apparent viscosity with high rates of shear—exactly the opposite of what is desired. The curve for Latex B bent in the right direction but did not bend enough to give the desirable low apparent viscosity.

Viscosity vs. Time

Not only do coating colors change in viscosity with rate of shear; their viscosity changes with the time the shearing force is applied—some increase, some decrease and some decrease at first and then gradually increase.

A coating color is exposed to a high rate of shear for a finite, although brief, interval of time. If advantage can be taken of the rapid initial decrease in viscosity shown in Figure 4 for Latex C in addition to the decrease in viscosity due to increasing rates of shear, optimum performance will result.

Controlled Rheology for Higher Solids

How does controlled rheology latex permit higher solids content formulations? If we decrease the solids content of the formulation containing Latex B from the initial 65 to 60 per cent, a curve is obtained on the Merrill-Brookfield high shear viscometer (Figure 5) which is very similar to the curve for Latex C at 65 per cent solids. Dewey and Almy's researchers have proved that these similar curves mean similar performance on the coater.

There are many other facets which Dewey and Almy has uncovered and is continuing to uncover on how the rheological properties imparted to the coating color by the latex can be controlled to provide optimum performance on the coater. The development of the Merrill-Brookfield high shear viscometer, which closely simulates actual coating conditions, has played an important role in developing Darex Latex C, the first latex with controlled rheology. Darex Latex C, which will be introduced to the paper industry for the first time at the Coating Conference, is the commercial realization of extensive research to develop a latex which would give low pattern at the highest possible solids content.

Uses halftones for printing, Cities Service Wax for coating

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Cities Service won the wax role at Hercules because in its own way it is as far ahead of competition as Hercules itself.

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Moreover, the quality of Pacemaker Wax cannot be surpassed. Made in the world's most modern wax refinery and subjected to the most exhaustive testing in the industry, Pacemaker gives maximum resistance to blocking and moisture transmission, has excellent tensile strength, hardness, gloss, and gloss retention.

If you're looking for that rare combination of superb quality and swift service, talk with a Cities Service Wax Representative. Call the nearest office or write: Cities Service Oil Company, Sixty Wall Tower, New York 5, New York.

Typical Example of the results Hercules achieves with its halftone printing process is this corrugated box for dishware. Hercules also pioneered use of fast drying water based inks.

A More Efficient Waxing Operation is achieved with Cities Service Pacemaker. The wax prevents blocking, gives hard gloss and maximum resistance to moisture transmission. Locally warehoused, it enables quick delivery and less storage for customers.

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MAY 1959 | *Published quarterly for the information of paper and board mills* | VOL. 1, NO. 2

'Happy With New Langston Winder'

RUNS BETTER ROLLS AT CONTINENTAL PAPER

Automatic Control, Rugged Construction Help End Guesswork and Roll Telescoping

"We're happy about our new Langston winder," says L. G. Wilder, mill superintendent of Continental Paper Company, Ridgefield Park, N. J.

"We can better control the density of our rolls than ever before. We regularly get quality rolls. Spoilage is kept to a minimum," Wilder adds.

No Guesswork

The new Langston winder has been in operation since last December. It takes portions of the production of a 132-inch paper machine and of a 122-inch paper machine and rewinds rolls up to 72-inch diameters.

"There's no guesswork on the part of the operator," explains Maurice Strelitz, engineering supervisor at Continental Paper. "We're rewinding high quality folding boxboard, ranging in caliper from 16 point to 50 point. We know the best settings for the various basis weights. Thus, we can set for what we want.

Rugged Construction

"Part of the credit for uniform density must go to the extra heavy and rugged construction of the rider roll assembly. With it we've been able to reduce telescoping of the newly wound roll to an absolute minimum.

"We used to have to stop and put a collar clamp on the roll to prevent telescoping. Now we never have to do that.

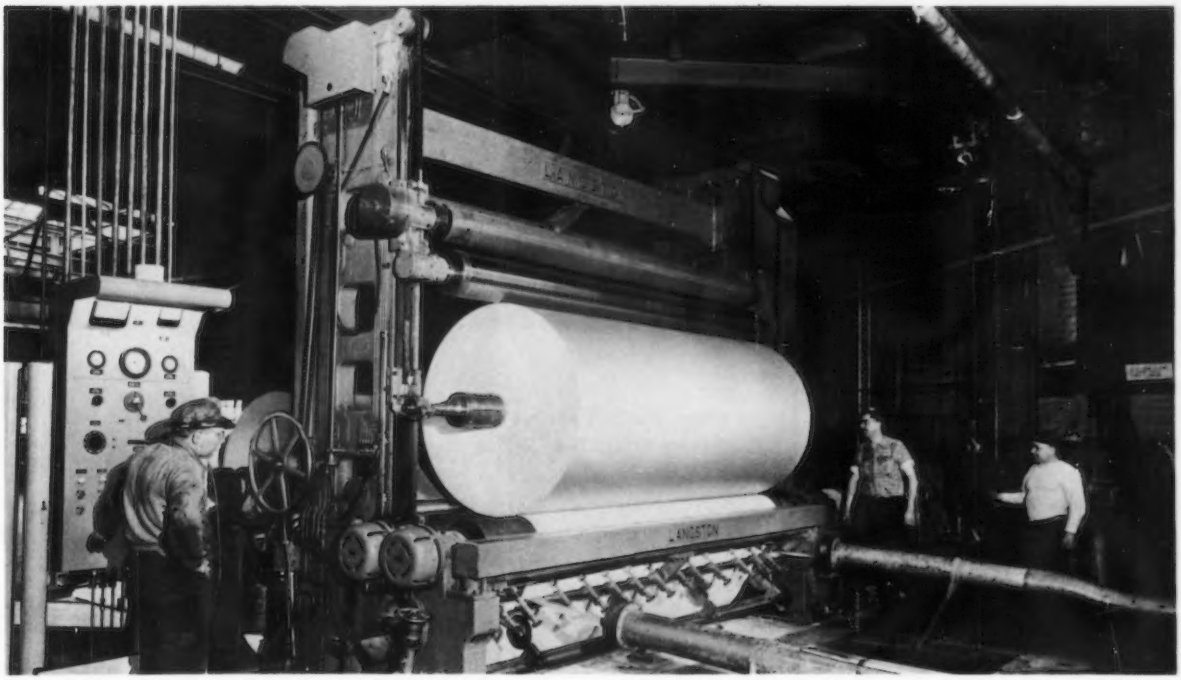
(*Continued on Page 2*)

Langston Offers New Bulletin On New Shaftless Backstands

Langston has published a new eight-page bulletin, *Shaftless Unwind Stands*, covering latest developments in this equipment for rewinding and converting applications.

The bulletin is designed to be of help to those in paper and board mills who are responsible for recommendations and decisions on slitting and winding equipment and converting operations. It describes the latest engineering developments in shaftless unwind stands and covers important details with photographs, description and engineering specifications.

Write to Samuel M. Langston Company, Camden 4, N. J., for copies and ask for *Shaftless Unwind Stands*, bulletin number 222.



BUILDUP. Boxboard is slit and rewound on new Langston winder at Continental Paper Company.

Langston Winder Produces Rolls Of Better Quality At Continental Paper Co.

(*Continued from preceding page*)

"Part of the credit, too, belongs to the automatic tension control in the drive. As the parent roll decreases in diameter, the braking automatically compensates for the reduction in diameter and results in rewound rolls of more uniform density and higher quality.

Fully Satisfied

"The winder is rated at 2000 feet per minute. We've been running it at 1500-1800 fpm and have had no trouble at all in keeping up with the portion of our production from the paper machines that goes into roll orders.

"You can say we're fully satisfied with our Langston winder," Strelitz concludes.

The new winder replaced a Langston winder in operation at Continental Paper for 37 years. The old winder was designed for 600 fpm but was operating at 1500 fpm and still turning out good rolls, Strelitz reported, but the Company wanted more rugged and more versatile equipment.

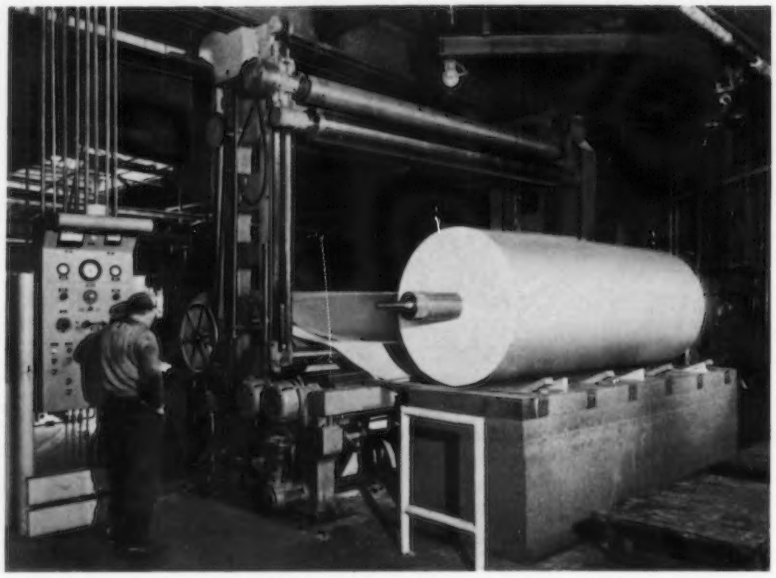
Utilized Recent Alterations

Four years ago a new 125-horsepower drive was installed on the old winder by another company, as was a roll ejector. Langston engineered the new installation to function with those recent alterations to the old machine and thus saved as much as possible for Continental Paper.

The new winder achieves quality rolls and improves efficiency in production with such features as hydraulic control of the rider roll assembly, pneumatic clutch on the rider roll, pneumatic braking to control the force required to raise the rider roll as the rewound roll increases in diameter, automatic roll ejector, Revolvator roll drop and pneumatic Tidland core shafts.

The core shafts are pulled from the rewound rolls with an Ingersoll Rand pneumatic winch. Trim is removed by air suction through flexible conduits to a fan where it is chopped and blown through pipes for about 200 feet to the beater.

The winder also utilizes a Dynamatic Eddy current clutch drive, and on the backstand it uses a matching Eddy current brake providing constant tension control during the unwind.



EJECTION. Rewound rolls are pushed onto Revolvator roll drop. Tidland core shaft will be pulled out by Ingersoll Rand pneumatic winch.

CLEAN CUT. Quality of roll is checked by finishing room foreman and operator.

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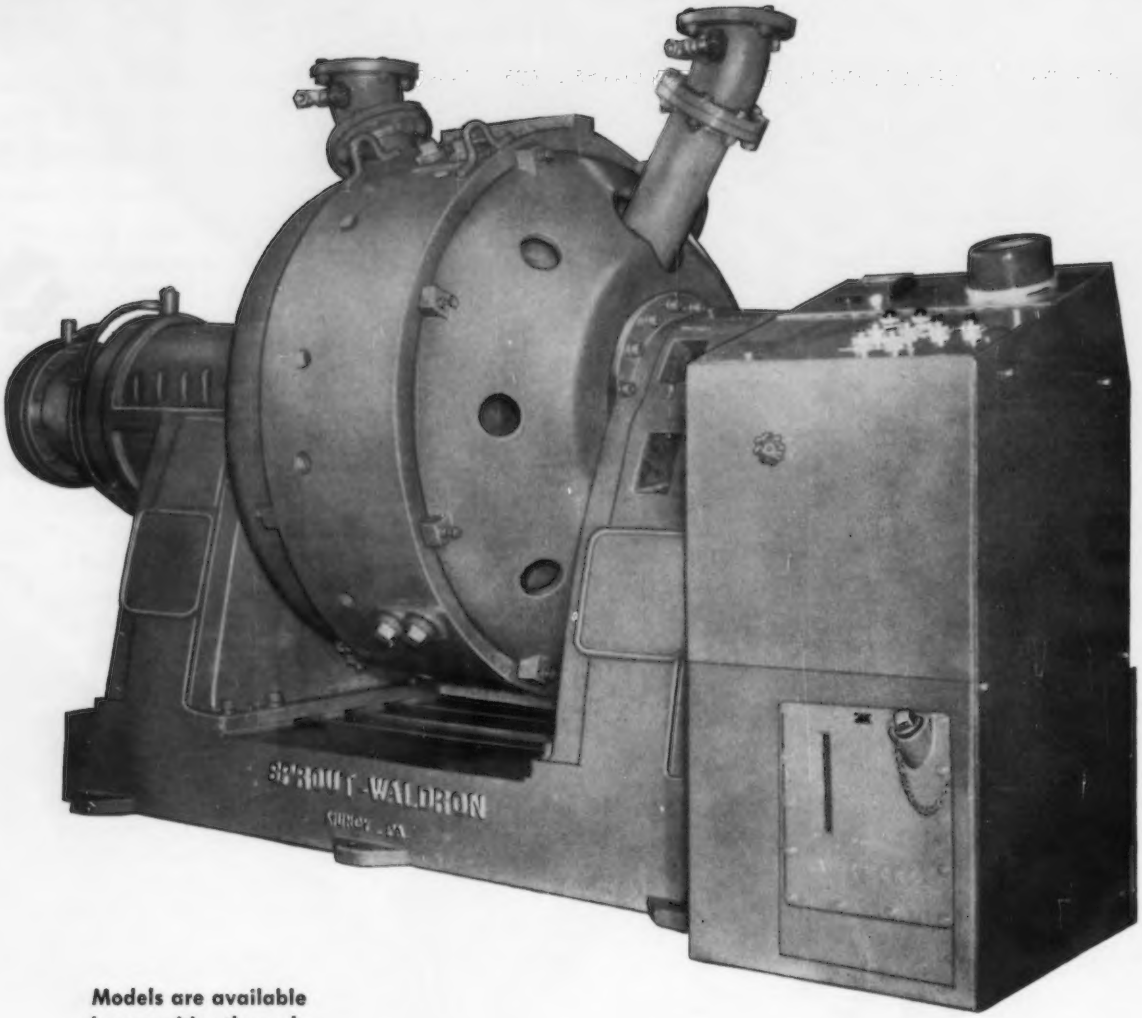

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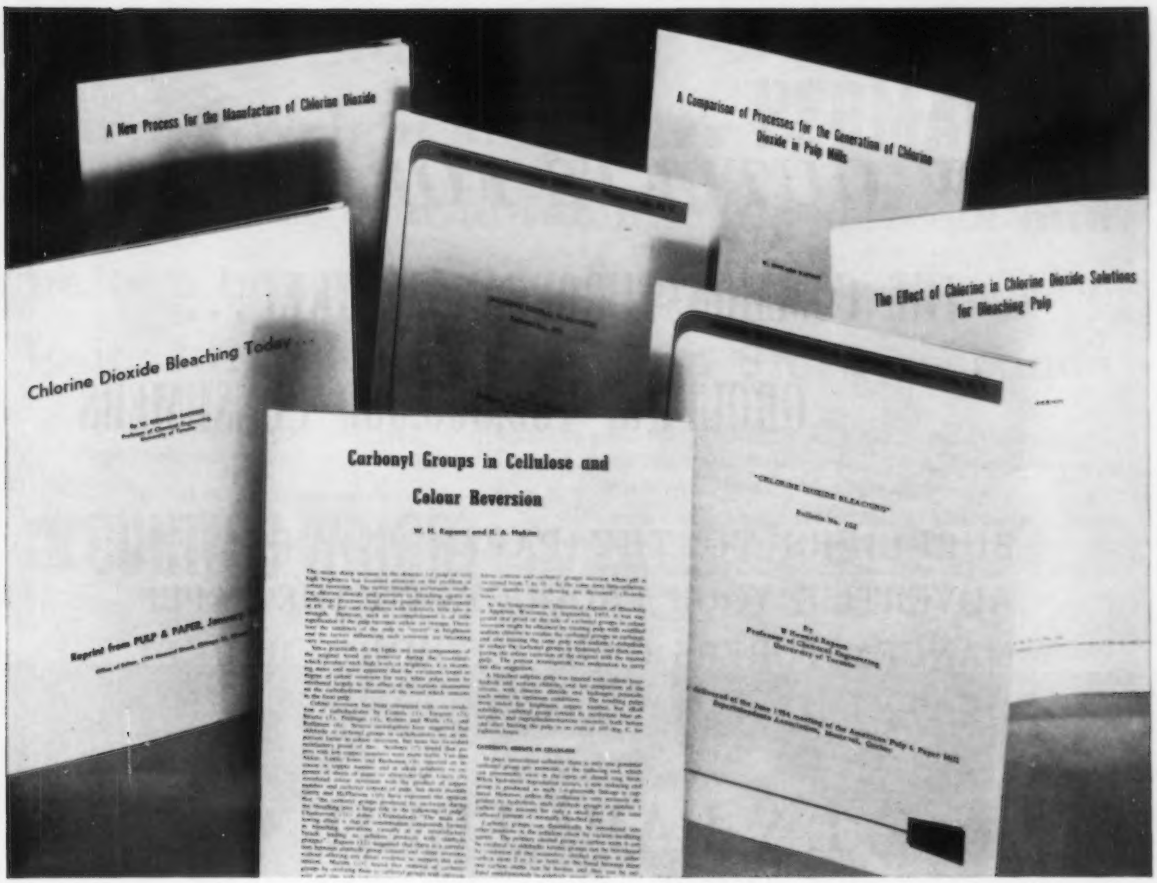
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A Comparison of Processes for the Generation of Chlorine Dioxide in Pulp Mills
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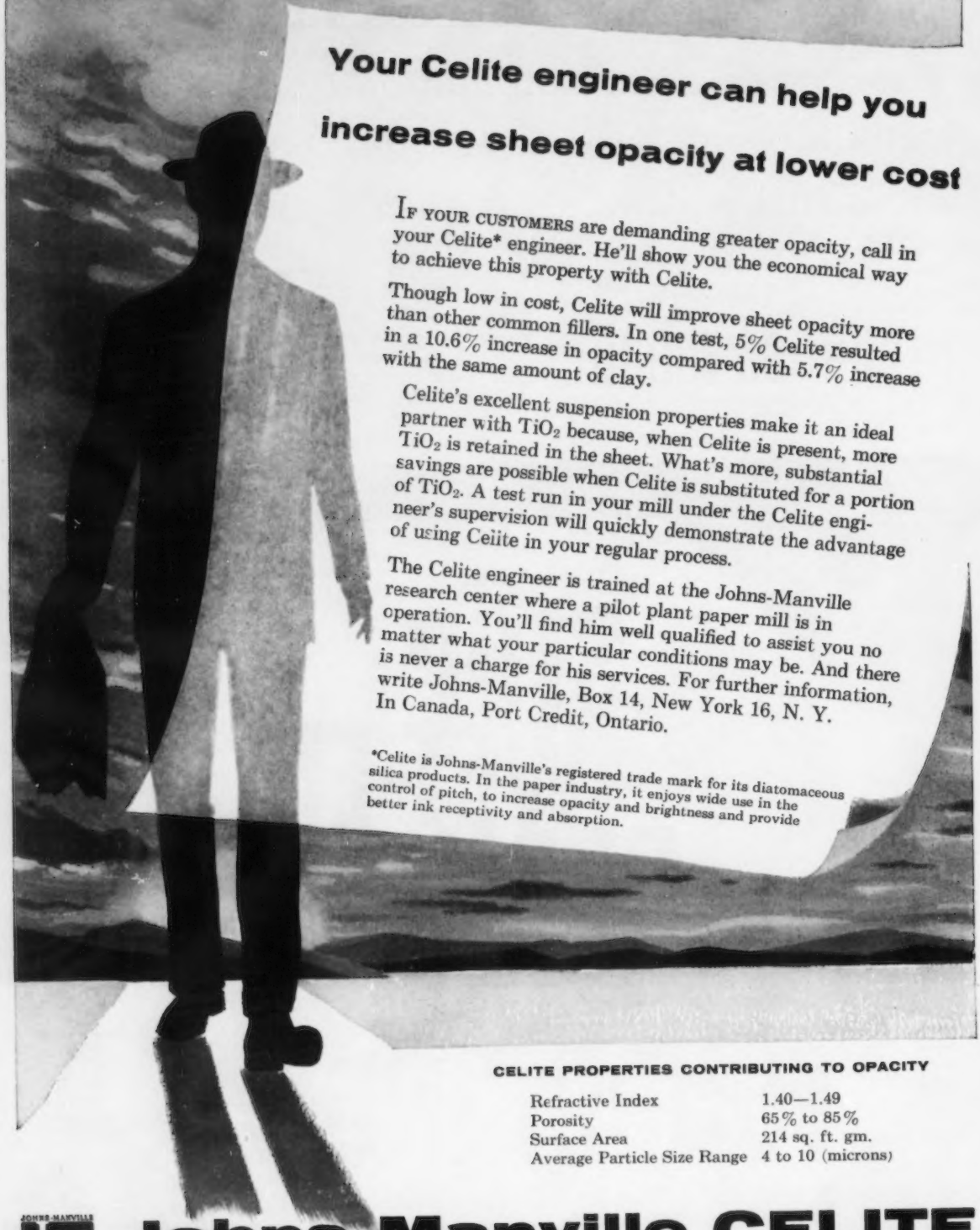

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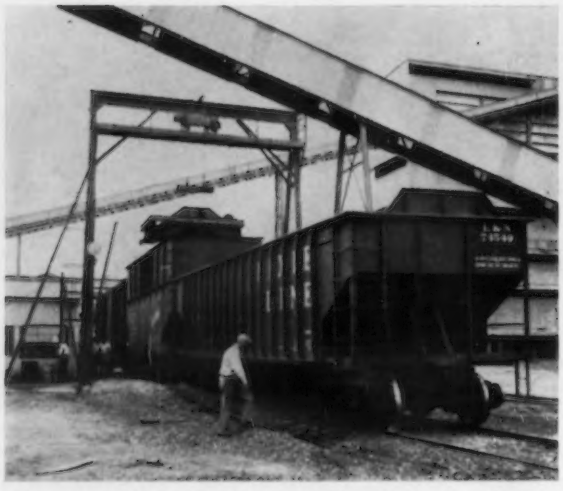

Figure 1. Emptying a 21½ unit chip car in 6½ minutes. Note car with built-up sides which increases capacity.

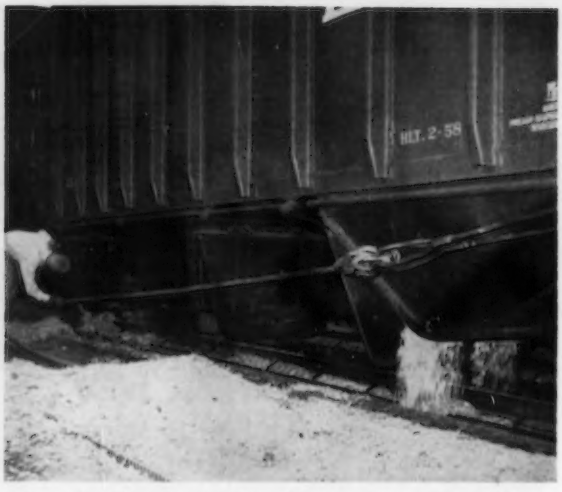

Figure 2. Chips flowing from hopper opening. Complete unloading cycle for 21½ chip unit car averages 23 minutes.

Unloading Hopper-Bottom Chip Cars

J. A. Holekamp,
Forest Engineer,
American Pulpwood Ass'n.

Since the fall of 1956, St. Regis Paper Co., at Pensacola, Fla., has unloaded purchased chips from hopper-bottom chip cars. In fact, a majority of the Southern mills buying chips and located east of the Mississippi make use of this technique of chip car unloading. Also, the chip unloading installations of more than half of these mills can be operated at the same high unloading rate of capacity as the system described here.

Unloading Cycle

At St. Regis, a winch and cable car-spotter positions each loaded car over the dumping pit. It can handle a string of 10 loaded chip cars with ease. A top car shaker helps discharge chips into the dumping pit. Three drag chains covering a total width of 17 feet draw chips from the pit and discharge them into a fast-running rubber belt. The chips are delivered direct to chip bins or to either of two tall chip silos, each capable of storing 305 loosely packed units of chips. (A chip unit normally averages 190 cubic feet in volume, gravity loaded and measured at point of destination. When discharged into the silos, expansion to about 210 cubic feet per unit takes place).

The complete unloading cycle of a hopper-bottom chip car carrying 21½ chip units (car scale) averages 23 minutes. This involves the following steps: spotting the car; attaching the car shaker; shaking the car (6½ minutes); removing the car shaker; adjusting the car-spotting winch cable; and spotting the next full car of chips. At this sustained rate of production, 450 chip units can be unloaded in an eight-hour shift. One man operates this unloading installation. Therefore, the man-day rate of production is 450 chip units. This compares favorably with the unloading rate expected of a crane (with orange-peel grapple) unloading pulpwood from rack cars. In contrast, the man-day unloading rate of chips from boxcars seldom exceeds 40 units per eight-hour day.

Chip Car Design

At the 1956 fall meeting of the Southwestern Technical Committee of the American Pulpwood Association, members recommended certain key design features which they felt worthy of close consideration by railroads. These recommendations were published in the minutes of that meeting (dated October 31-November 1, 1956, and entitled "Chip Handling and Transportation"). This was in reply to many requests for information about chip handling and transportation. Questions asked were mostly about efficiency in loading and unloading and the payload capacity of rail cars. The Southeastern Technical Committee at its 1956 fall meeting voted to go on record favoring the recommendations on chip car design offered by the Southwestern group. Today there is ample evidence that a majority of these recommendations were well received and put to use.

Following are these recommendations in digest form:

1. Kind of Car—bottom dump car, preferably with hopper;

2. Capacity—4,000 cubic foot capacity or more; a payload of 20 or more chip units;

3. Construction Material — All steel construction, adequately reinforced as seen in Fig. 4; construction design and materials should enable use of either a top car shaker or a side car shaker;

4. Construction Features — Eliminate pockets within the car—pockets where dirt and gravel may collect while the car is in transit but empty;

5. Openings—Open top and multiple hopper-bottom (a few companies prefer a car design which enables the closing of top cover-hatches, there-

From American Pulpwood Ass'n. Technical Release No. 59-R6.

by eliminating possible contamination of chips while car is in transit and being loaded and unloaded.

6. Slope Sheet—Slope sheet angles not less than 35°; this minimum angle is necessary for top efficiency in unloading.

7. Surface Preparation—Rust-free and painted inside and outside surfaces; rust and scale should be cleaned from inside and outside surfaces and surfaces coated with a durable rust resistant material; this will prevent chip contamination from this source; cars should be assigned to chip car loading only.

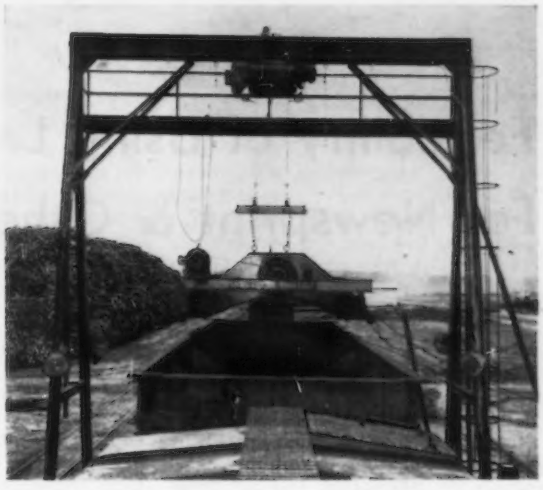

Figure 3. Close view of top car shaker and electric motor and winch for lowering and raising.

Comments

This report describes a pulpwood chip car of the hopper-bottom design that was and still is recommended by the majority of the members of the pulpwood industry concerned with chip movement. The hopper-bottom design provides the cheapest and fastest method of unloading substantial quantities of chips from rail cars. Heavy capital investments have now been made by the pulp and paper industry to provide installations for unloading chip cars of hopper-bottom design. This looks like the chip car type of the future. It is almost certain to be more widely adapted and used than chip cars designed to open from the side, or with any other designs which do not have the hopper-bottom principle.

Information for this report was provided by Maynard Stitt and T. N. Baker, St. Regis Paper Co., Pensacola, Fla.

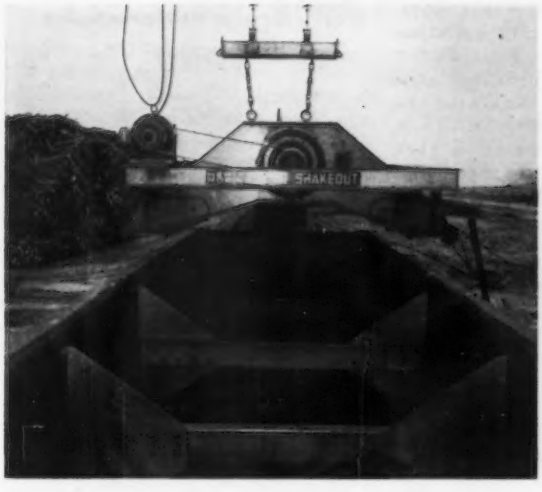

Figure 4. Note sturdy construction of hopper car with built-up steel sides. Evidence of damage from car shaker is non-existent on these cars.

Figure 5. A conventional hopper car made available for chip unloading. Payload capacity at an inefficient level. Also note ramp for unloading the occasional box car with scoop shovel.

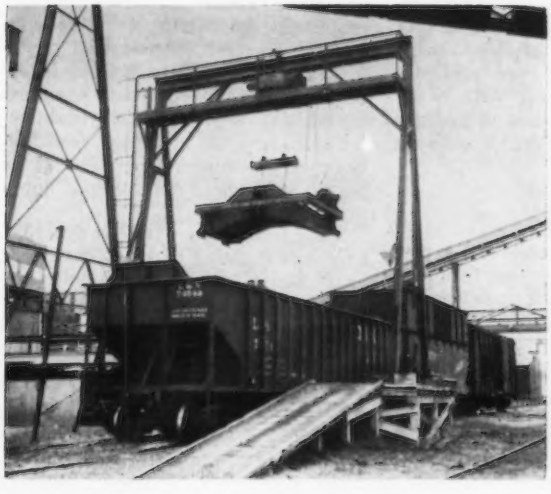

Figure 6. High-sided steel chip cars of the hopper bottom type.

Feasibility of Using Lake States Hardwoods For Newsprint & Other Pulp & Paper Products

The Forest Service of the U. S. Department of Agriculture has just issued an 80-plus-page booklet with the above title. We reproduce below the summary and conclusions from this report. In reading this it must be remembered that any comments on newsprint issuing from Washington always have political implications. In addition our readers will recall the recent agitation by a Lake States Senator for the erection of a pilot mill in that area to investigate the feasibility of the manufacture of newsprint from hardwoods. It seems probable that there is some relation between this agitation and the publication of this report.

The principal findings and conclusions of this report may be summarized as follows:

Newsprint Consumption

Consumption of newsprint and of other grades of paper and board has been expanding very rapidly in the United States, and further major expansion of markets for these products is anticipated. Newsprint consumption in 1957 totaled 6.8 million tons. Projections indicate market demands may reach about 8.5 million tons by 1965 and 10 million tons by 1975. Projections of consumption trends for other grades of paper and board indicate that consumption of 28.5 million tons of these products in 1957 may increase to about 50 million tons by 1975, or a rise of 75 per cent. Excess capacity in the pulp and paper industry is a problem for the time being, but continued economic growth in the United States is expected to result in resumption of the long-run expansion of demand for essentially all products of the pulp, paper and board industries.

U. S. Newsprint Production

The United States is essentially self-sufficient in production of practically all grades of paper and board, with the notable exception of newsprint. For various technical and economic reasons Canada has long supplied most of the newsprint used in the United States. In recent years, however, United States newsprint capacity has been increasing rapidly, particularly in the Southern States. In 1958 domestic production amounted to 1.7 million tons, or 27 per cent of U. S. consumption.

Where Newsprint Markets Are

The largest markets for newsprint as well as other grades of paper and board, both now and prospectively, are in the Central and Northeastern States. Consumers in the Central, Lake, and Plains regions, relatively near to the pulp and paper producing areas of the Lake States, use more than 2 million tons of newsprint annually or about one-third of the U. S. total. Newsprint can be shipped from Lake States mills to major consuming centers in these regions for $5 to $8 a ton less than shipments from competing regions.

Favorable Location

Lake States mills also are favorably located to supply other major consumers of pulp, paper, and board products. Production of hardwood kraft pulp for use in integrated mills or for sale as market pulp, and production of cold-soda hardwood pulp for use at established mills in the Lake States appear especially promising both from a market standpoint and availability of suitable timber supplies. These pulp products are therefore included along with newsprint in this appraisal of opportunities for expanded use of hardwoods in the Lake States.

Technically Feasible

Laboratory and commercial experience has established the technical feasibility of producing newsprint from furnishes containing substantial amounts of aspen groundwood and semichemical type hardwood pulps. This is partly the result of improved technology for producing hardwood pulps by the cold-soda, the chemigroundwood, or the neutral sulphite semichemical process. Hardwoods such as aspen, maple, birch, and sweetgum are today being used in a number of newsprint mills.

Possible Furnish

On the basis of laboratory experience and observations of various furnishes used at commercial newsprint mills, it is concluded that a newsprint furnish consisting of 60 per cent aspen groundwood, 15 per cent cold-soda pulp from mixed hardwoods, and 25 per cent unbleached softwood sulphite or semibleached softwood kraft pulp could be run efficiently on modern high-speed paper machines. Properties of papers made experimentally with this furnish are reasonably close to the average properties of the commercial newsprint paper produced today. Various other combinations of hardwood and softwood pulps might also be used successfully in production of newsprint.

Further Study Needed

Experience to date in the use of hardwoods in newsprint is highly promising, but current judgments as to the technical and economic feasibility of using larger amounts of hardwoods as indicated above need to be verified by large-scale commercial trials under practical operating conditions. Such trials together with further research in pulp and papermaking processes are needed to establish conclusively the optimum combination of pulps in any particular mill, and the need for modifications of equipment or methods to permit high-speed operation of newsprint machines.

The technology and commercial practices in using bleached hardwood kraft and other hardwood pulps for printing, bond, and various other grades of paper and board are well established.

Ample Hardwood Resources

Hardwood timber resources in the Lake States region are available in

sufficient quantity to support a substantial expansion of the pulp and paper industry for newsprint, hardwood kraft and cold-soda pulp, or other products. An excess of allowable cut of both aspen and mixed hardwoods is present in all states, although the available allowable cut of aspen is largely concentrated in Minnesota and Michigan.

Supplies of softwood pulpwood in the Lake States are relatively short and the industry for many years has imported substantial quantities of softwoods from other states and from Canada. Some current excess of allowable cut of softwoods does exist, but this is mainly concentrated in northern Minnesota.

It is concluded that the aspen pulpwood and the softwood pulpwood required for new plant capacity to produce newsprint could be obtained in the region. However, if this capacity were located in Wisconsin rail transportation costs and wood costs f.o.b. mill for these species would be relatively high.

Analysis of Possible Economies

Economic analyses of selected paper industry projects to be located in northern Wisconsin have been made by Ebasco Services, Inc., a major engineering and consulting firm located in New York City. These pointed to the following conclusions:

(a) Income statements for a newsprint mill having a capacity of 500 tons per day of standard newsprint indicate for the first five years of plant operation at full nominal capacity a profit margin of 6.9 per cent of net worth. This compares unfavorably with the 1957 average of 10.5 per cent for 10 large newsprint manufacturers.

(b) Income statements for a kraft pulp mill having a capacity of 300 tons per day of bleached hardwood pulp indicates a profit margin amounting to 11.6 per cent of net worth during the first five years of plant operation at full nominal capacity.

(c) Income statements for a cold-soda hardwood pulp mill having a capacity of 100 tons per day and built in connection with an existing paper mill indicates that a paper producer dependent on purchases of market pulp can expect a return of 10.2 per cent profit on mill investments. Since the capital amount is of moderate size, the parent organization would be likely to have several alernative paths of investment and these must be compared, technically as well as financially, in order to draw a specific conclusion on this project.

Economically Questionable

These findings indicate that production of newsprint at a mill located in northern Wisconsin appears economically questionable, whereas expansion of production of kraft and cold-soda pulps from hardwoods appears to be both technically and economically feasible. Because of the reserve capacity presently available in the pulp, paper, and board industries, however, the timing of new plant construction or expansion to meet anticipated long-run increases and demands is a matter of major importance.

Better Site Possible

In view of geographic differentials in wood costs, it is also possible that mill locations in areas of surplus wood such as northern Minnesota might be somewhat more promising than indicated above. Final determination of the desirability of production at any specific site necessarily must be based upon detailed plant location and market studies, and upon comparative data for the various areas in the United States and Canada where further expansion of the industry is possible.

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Kalamazoo "Side Hill" Washer
These practical slide washers give a better and more effective wash job than other washing methods. They may also be used as thickeners and savealls. These units are designed by Kalamazoo engineers — experts in serving the paper industry for more than 90 years. Our experience enables us to completely prefabricate the units of top quality materials. Installation supervision can be furnished.
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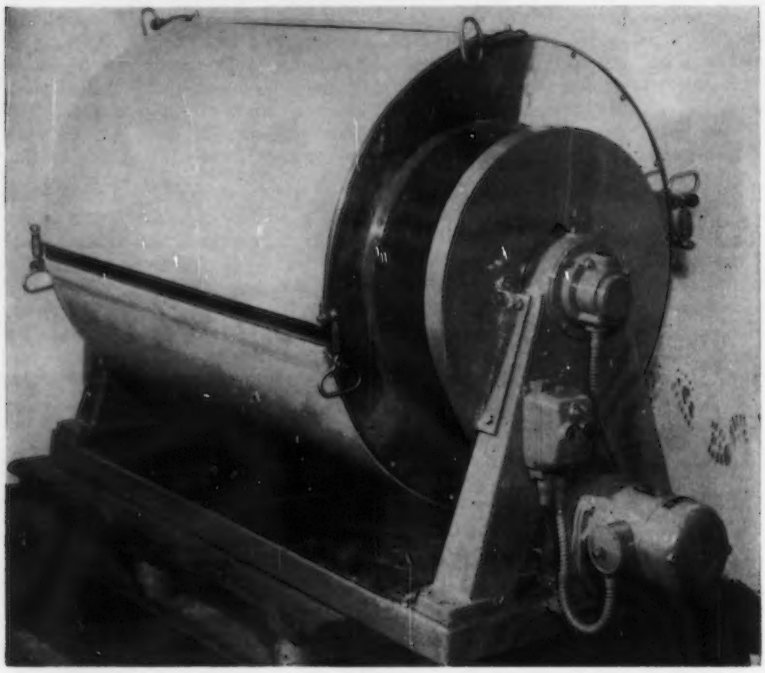
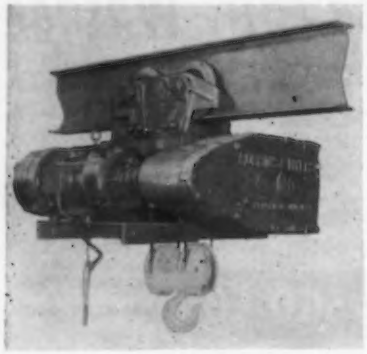
PJT NEW EQUIPMENT & SUPPLIES



LABORATORY SHEET DRYER has felt partitioned into four separately removable sections so that four tests can be carried out independently of each other. A centrally located electric heating element insures absolute surface temperature uniformity. Designated Model WEDRY, it is constructed by A. B. C. J. Wennbergs Mekaniska Verkstad in Sweden. The unit is available in this country through Mertecfelt Corp., P.O. Box 688, Englewood, N. J.

Crane Hoists Require Low Headroom

Robbins & Myers, Inc., Hoist & Crane Div., Springfield, Ohio, has introduced its line of electric hoists available in capacities from 1½ through 7½ tons. They require extremely low headroom and are powered by a 7½ h.p., 30-minute, 55°C rise, totally enclosed motor with weatherproof magnetic brake. This brake is the multiple disc type that has short stroke travel to prevent peening. It may be adjusted externally without dismantling. There are no mechanical linkages. The friction discs are fitted to a splined hub for easy replacement and even distribution of the braking load. Brake coils cannot be overloaded nor the air gap increased excessively; thus the danger of coil burn-out is said to be eliminated.



Other features include: a 4-position, weight-operated limit switch to protect both the hoist and the operator; the use of extra-large diameter cable drums; and, machine-cut, helical load gears, pinions and shafts made of alloy steel.

Type F3 hoists are available with a wide variety of mounting options: floor mounting, lug suspension, manual and hand-geared trolleys, motor-driven trolleys, or suspension from patented monorail type trolleys. Motor-driven trolleys are available in single speed, variable speed and fluid drive designs; speeds range from 30 to 150 feet per minute.

Alloyed Truck Plates Handled by One-Man

A line of lightweight dock plates featuring safety tread surfaces for maximum power truck traction has been announced by Magline Inc. Designed for truck loading operations, these MagnaLum units are made of high-strength light metal alloy, and are easily handled by one man. They are available in standard 48-inch widths, from 24 inches to 60 inches long, and in other popular sizes. Load ratings range from 1,000 lbs. to 5,000 lbs. axle load. Additional features include: positive position stops to securely lock board in place between the dock and carrier; beveled plate edges to minimize load jar and prevent load loss; crowned construction facilities smooth, safe crossover and prevents 'hang up' of low underclearance equipment. Plate edges have bright yellow safety-lane markings. Additional information from Magline Inc., 1900 Mercer Street, Pinconning, Mich.

Flexible Belt Conveyor Eliminates Spillage

Feature of the conveyor is its exclusive "Lo-Rope" idler mounting with the idler positioned above the rope side frames. This type of mounting, according to the maunfacturer, automatically centers the load, eliminates spillage, and—combined

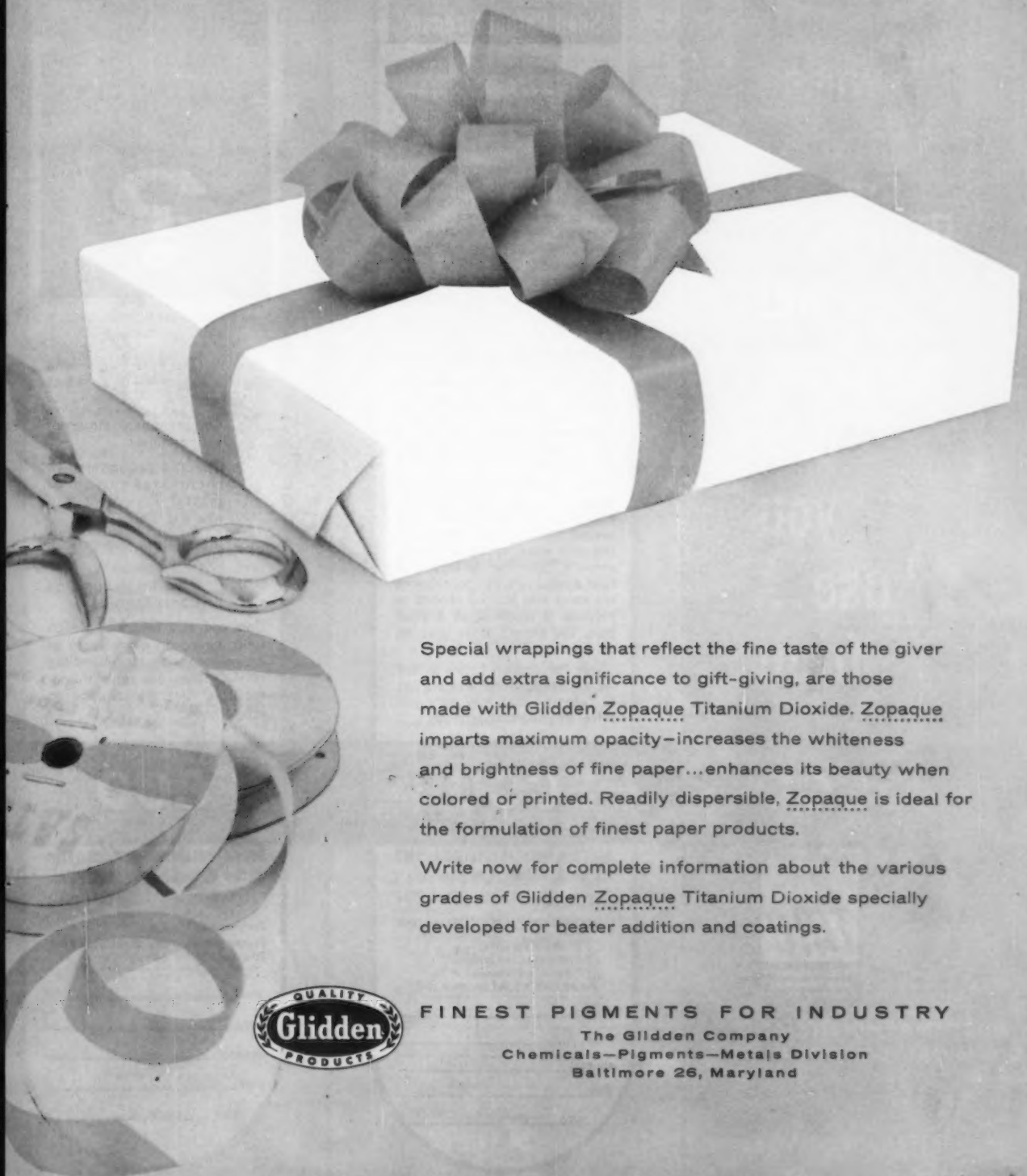
with the deep 27-degree troughing of the belt itself—greatly increases its carrying capacity.

In addition, this design permits

(Continued on page 54)

FINEST GIFT WRAPPINGS...

begin with Glidden Zopaque® Titanium Dioxide



Special wrappings that reflect the fine taste of the giver and add extra significance to gift-giving, are those made with Glidden Zopaque Titanium Dioxide. Zopaque imparts maximum opacity—increases the whiteness and brightness of fine paper...enhances its beauty when colored or printed. Readily dispersible, Zopaque is ideal for the formulation of finest paper products.

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Well, perhaps there's a little more to your gaining use of Becco patents than just mailing your dollar in, but not much more. And certainly, no more money. The $1.00 really does cover it.

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If one of our patents can help you, we'll be glad to license the rights to you **perpetually,** for just one dollar. You get a nice certificate, incidentally, to cover the legalities, but more important – you also get free our complete engineering help in setting up your process, handling the material, maintenance, etc., etc.

What do **we** get? You as a **customer** – we hope – but there's no obligation on your part. Just seems to work out that way, though – when we know enough about a particular peroxygen to hold a patent on its use, chances are we've also learned enough to produce it purer than anyone else. You benefit from this; we do, too.

Use the coupon below to ask for a Sales Engineer – or our list of patents – that may help you solve an important problem.

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Can you use this free Becco help, based on more years of experience with bulk handling of H_2O_2 than any other manufacturer? Use the coupon to let us know.

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Years of experience in paper and pulp processing have produced a library of technical information which is available in individual bulletins, free on request. Use the coupon below to let us know which you'd like to receive.

No. 31 — Groundwood Bleaching Variables — A Statistical Approach.

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No. 47 — Peroxide Bleaching of Pulps.

No. 48 — High-Density Pulp Bleaching.

No. 64 — Development Studies on Last-Stage H_2O_2 Bleaching of Alkaline Pulps.

No. 65 — Peroxide Bleaching of Southern Pulps.

No. 66 — Becco Laboratory Procedures for Pulp Bleaching, 1955 Ed.

No. 91 — Peroxide Bleaching of Chemi-Mechanical Hardwood Pulps.

No. 92 — Peroxide Bleaching of Chemical Pulps.

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New Cold Caustic Bleach Process

Looking for a way to use greater amounts of low-cost, more plentiful pulp—without capital investment for bleach equipment? Then let a Becco Sales Engineer show you our new technique* which allows you to bleach in the same equipment regularly used for the manufacture of cold caustic pulp.

In this new process, peroxide bleach liquor is added at the Bauer Refiner, and bleaching occurs during the refining operation. Bleach response depends on refiner densities.

Up to 20 points brightness increase has been obtained in commercial operations to date, and with no additional steam costs, no holding time, and no excessive chemical costs.

Becco can assist you immediately in setting up a production run and evaluating results. First step: use the coupon to let us know you're interested.

*—Patent Pending

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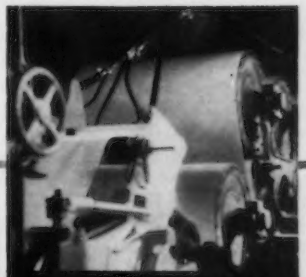

How BRIGHT Is BRIGHT?

That's a hard question to answer. It depends on how the pulp is treated.

Trouble is, paper can show an 86 level at the layboy, but by the time the paper is delivered, this has dropped to 82 or lower. With conventional bleaching methods, that is.

Many chemical pulp producers have found the answer to this problem in Becco's Dryer Steep Bleaching Process (patented, but licensed perpetually for one buck). Applied by means of spray pipes across the pulp sheet ahead of the dryers, Becco Hydrogen Peroxide increases brightness permanence and bleaches in transit. Often, in fact, an 86 layboy level **improves** to 88 by delivery time.

This is just one example. Becco has a vast amount of technical knowledge compiled from 31 years of experience with **all** types of pulp. If **you'd** like help with your pulp, free of any obligation, let us know with the coupon below.

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Gentlemen:
We would like help with our pulp. Please have a Becco Sales Engineer call.

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NEW EQUIPMENT

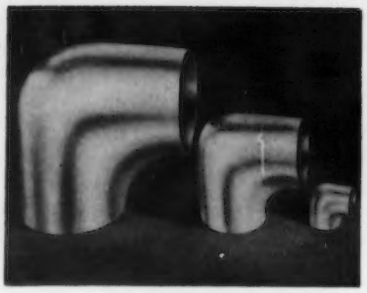
(Continued from page 50)

the economy of wire spacing between idlers. It also is said to reduce maintenance and replacement by eliminating belt "scrubbing" caused by "toeing-out" of wing idlers. This feature also contributes to belt portability and flexibility.

The belt is equipped with adjustable height platform rocker support stands for the rope, which minimize blocking and level the belt. Ropes, support stands and idler connections to the rope are completely out of the way of the carrying run, reduces belt edge wear. For further information, write The Long Co., Oak Hill, W. Va.

Aluminum Elbows Solve "Cracked Ell" Problems

Gasco humped aluminum elbows are designed to cover and protect the "weakest links" in every plant's insulated piping system, the "ell joint cracks." The patented humped design automatically compensates for pipe expansion and contraction and for



differences in radii that vary with pipe sizes and insulation thickness. As a result, with only 13 interchangeable sizes, Gasco humped elbows will fit 109 combinations of varying pipe sizes and insulation thicknesses ranging from three-inch OD through 12.81-inch OD.

Elbow halves can be quickly clamped wih two metal bands. Installation time is said to be 5 minutes or less, with no cutting away of insulation material to fit the elbow. No drying time, no clean-up time loss, since the humped elbows take the place of cements, mastic weatherproofing, chicken wire, canvas and paint.

The humped elbows are two-piece, heavy gauge (.025-.032). Surfaces inside and out are smooth, free from wrinkles and metal folds and designed to fit either long or short radius ells.

Gasco humped elbows are distributed direct from the manufacturer, General Aluminum Supply Corp., Kansas City 26, Mo. Samples and data sheets are available.

Pipe Fittings Lined With Plastic Rubber

A complete line of Plastisol-(PVC)-lined pipe fittings in malleable iron or aluminum has been announced by Victaulic Co. of America, Elizabeth, N. J.

The fittings, all designed with full flow radii and grooved ends, are available in elbows, tees, reducing tees, reducers, caps and adapter nipples in sizes from 1¼-inch through 12-inch diameters.

The plastic-rubber lining, applied by dipping, is seamless, of uniform ⅛-inch thickness, securely bonded to the interior and lapped completely around the ends of the fittings.

The fittings may be used with standard weight pipe either uncoated or lined with rubber, plastic or cement; or used with lined or unlined light-weight steel or aluminum pipe and tubing. They are suited for han-

(Continued on page 58)

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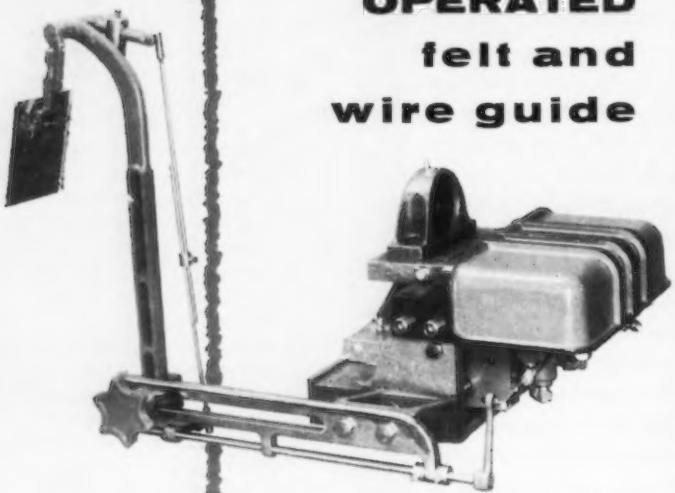

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Although entirely air operated, this new guide uses air only when a correction is made. What's more, "swing roll" effect or guide roll oscillation is completely eliminated.

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Once you see it, you will recognize the benefit these dyes can offer your mill papers, for here is the range of SANDOZ fast-to-light soluble dyes for tomorrow's paper products, from tissue to bond. Here are the direct dyes for the paper you make.

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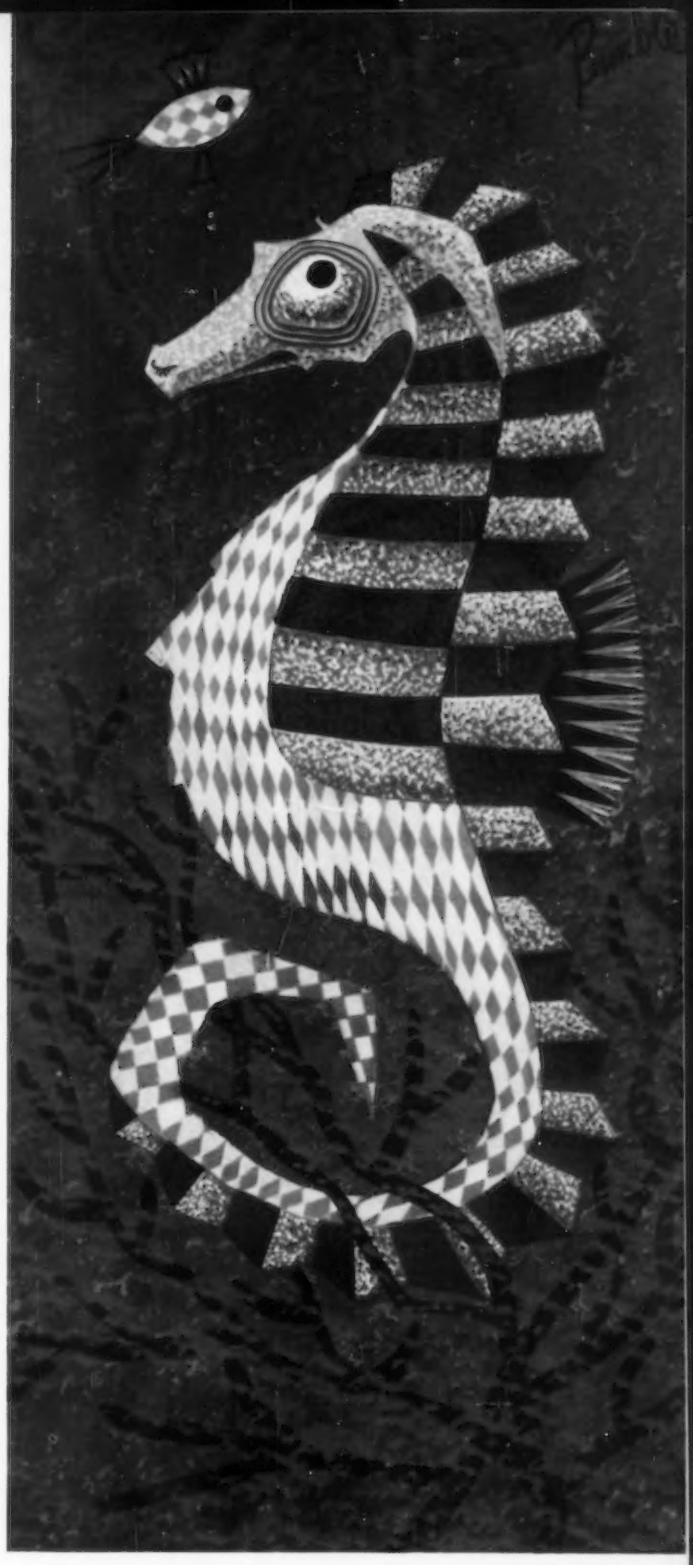

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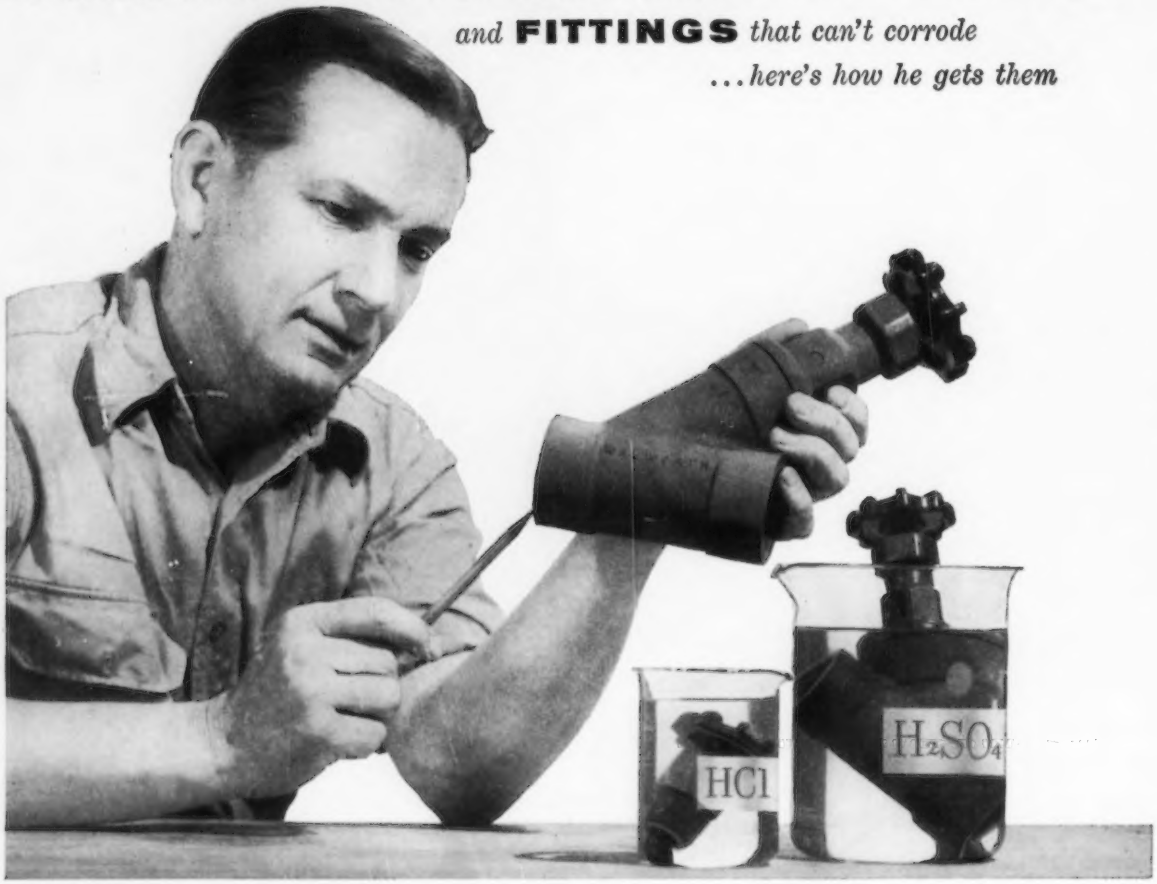

When the Walworth Customer is faced with the control of corrosive fluids, he looks at dozens of plastic valves and checks them for himself. He demands answers to questions like these: Can this valve corrode? Is it toxic? Is it non-aging? In Walworth PVC Valves and Fittings, the Walworth Customer finds his answers. Not only is PVC nontoxic and non-aging, – it *can't* corrode. *All* parts are made of plastic. Valves and fittings have high burst strength. Given those facts the Walworth Customer buys.

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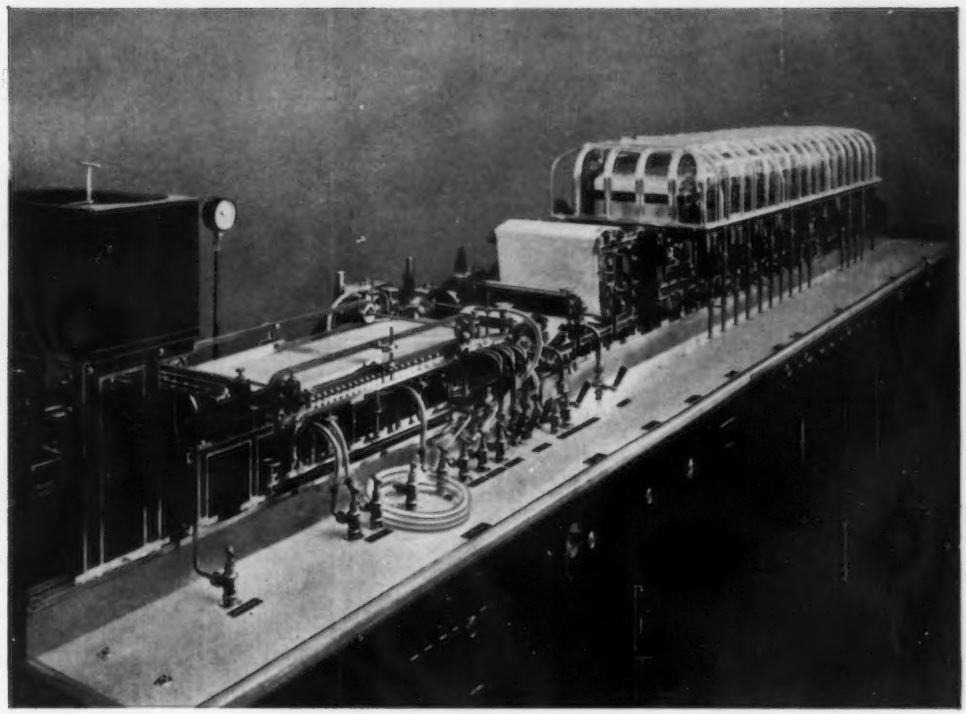

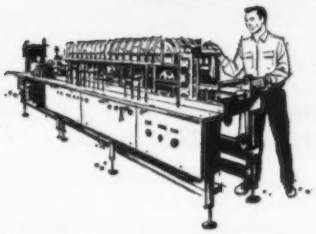

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Output Up to 3.3 lbs/hr

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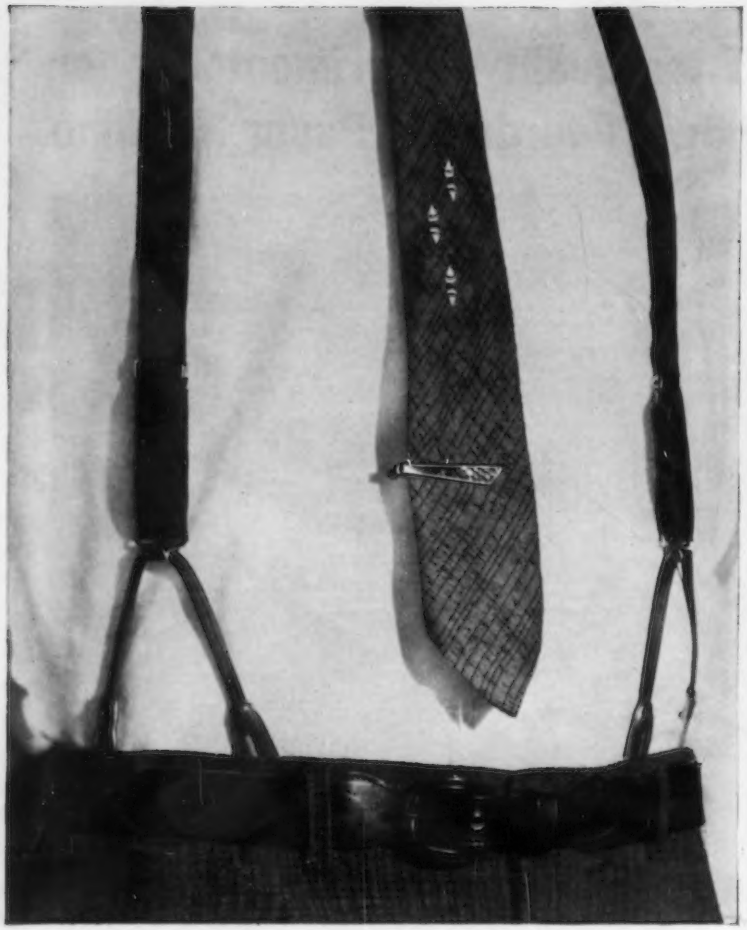

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Wyandotte CHEMICALS
MICHIGAN ALKALI DIVISION

PACING PROGRESS WITH CREATIVE CHEMISTRY

NEW EQUIPMENT

(Continued from page 54)

dling slurries and abrasive solids in suspension at pressures up to 1,000 p.s.i. They are also said to be resistant to numerous reagents.

Plastisol-lined systems may be

quickly assembled with three styles of Victaulic couplings — standard, lightweight and the snapjoint, boltless type. These are rigid systems and will not withstand as high temperatures as stainless steel systems, the manufacturer added.

Packaged Feeder Installs In Two Steps

Designed to facilitate the introduction of material into any kind of an air pressure conveying unit, the feeder will handle any material which can be conveyed pneumatically, and will feed from bin, hopper or conveyor. It is available in ½-h.p., ¾-h.p. and 1-h.p. units.

After uncrating, this completely assembled feeder is simply put into position and the single air connection made. It is then ready to operate. Flexibility of installation is provided by the fact that it can either be hung from a hopper or supported on its own base or stand.

A "rotary-vane" type, its design permits air entry in both head plates, thereby resulting in more thorough cleaning of pockets, emphasizes the company. Capacity is variable, depending on type of installaion and material being handled. For more information write Fuller Co., Catasauqua, Pa.

OBITUARIES

A. Guy Durgin, 71, traveling representative of the University of Maine Pulp and Paper Foundation, died suddenly in May. Mr. Durgin was taken ill while delivering a paper before the American Association of Training Engineers in Detroit, Mich.

He graduated from the University of Maine in 1908. In 1912 he went to work as the first instructor in the new pulp and paper curriculum at the university. In 1916 he was hired as chief of the paper section of the United States Bureau of Standards. He became superintendent of operations in research of the Spanish River Pulp and Paper Co. in 1918.

Mr. Durgin was named general superintendent of the Spruce Falls Power and Paper Co., Katuskasing, Ont., in 1927. He held this position until 1933 when he was made general superintendent of the Brompton division of the St. Lawrence Corp., East Angus, P. W. He retired from St. Lawrence in 1955.

Vernon E. Parmenter, 69, for more than 25 years export manager of the Dennison Manufacturing Co., died May 11th at his home in Southboro.

Mr. Parmenter was born in Wellesley, attended Dartmouth College in the class of 1912 and was a member of the Boston Export Club and Dartmouth Club of Boston.

Joseph J. Price, 65, a director of the H. P. Andrews Paper Co. of 7 Laight St., New York, died May 11th at his home in Little Silver, N. J. He had been in ill health several months.

Thomas N. Carter, 56, died on May 9th. Mr. Carter was employed at the Champion Paper and Fibre Co., Hamilton, Ohio, for the last six years as a technical engineer. Prior to his employment there, he had been associated with the Cammeron Machine Co.

Howard H. Whitten, 49, died suddenly May 7th at a Waterville, Maine, hospital.

A 1933 graduate of Colby College, Mr. Whitten had been employed by Scott Paper Co. in Winslow for 30 years, lately as a process control engineer.

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MICHIGAN ALKALI DIVISION

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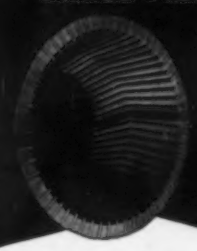

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Prices of Fibers

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Delivered Basis

	U.S.	Canadian	Swedish	Finnish	Norwegian
Groundwood	$ 82.50/ 90.00	$ 82.50/ 90.00	‡90.00/ —	‡80.00/ —	‡80.00/ —
Bleached Gw'd	$ 97.50/100.00	$ 97.50/100.00			
Kraft, Blchd.	157.00/ —	160.00/162.50	‡157.00/162.50*		‡157.50/ —
Kraft, Blchd. Hdwd.	152.00/ —		‡137.00/ —		
Kraft, Semi-bleached.	140.00/ —	140.00/ —			
Kraft, Unbl.	117.50/125.00	125.00/130.00	†125.00/130.00	125.00/ —	
Sulphite, Blchd.	155.00/ —	155.00/ —	*155.00/ —	*155.00/ —	155.00/ —
Sulphite, Bl. Hdwd.	150.00/ —				
Sulphite, Unblchd	135.00/ —	135.00/ —	†135.00/ —	*135.00/ —	
Sulphite, Unb'l, Gl'an		140.00/ —	†134.00/ —		
Soda, Blchd.	147.00/150.00	150.00/ —			

‡ On Dock Atlantic Ports. * Freight allowed. † Varying Freight Allowances

COTTON LINTERS

F.O.B. OIL MILLS
WEEK ENDED MAY 14

	Atlanta	Memphis	Dallas	Los Angeles
Grade 1	n.a.	n.a.	n.a.	n.a.
2	n.a.	n.a.	$ — /6.75	$7.50/7.40
3	$7.50/6.50	$7.50/7.00	6.25/5.75	7.15/6.90
4	6.50/5.50	6.50/6.00	5.50/5.00	6.50/6.25
5	5.50/4.50	5.25/5.00	4.75/4.50	5.75/5.40
6	4.50/4.00	4.75/4.50	4.00/3.75	4.50/4.00
7	4.00/3.00	4.00/3.00	3.25/2.75	3.00/2.75

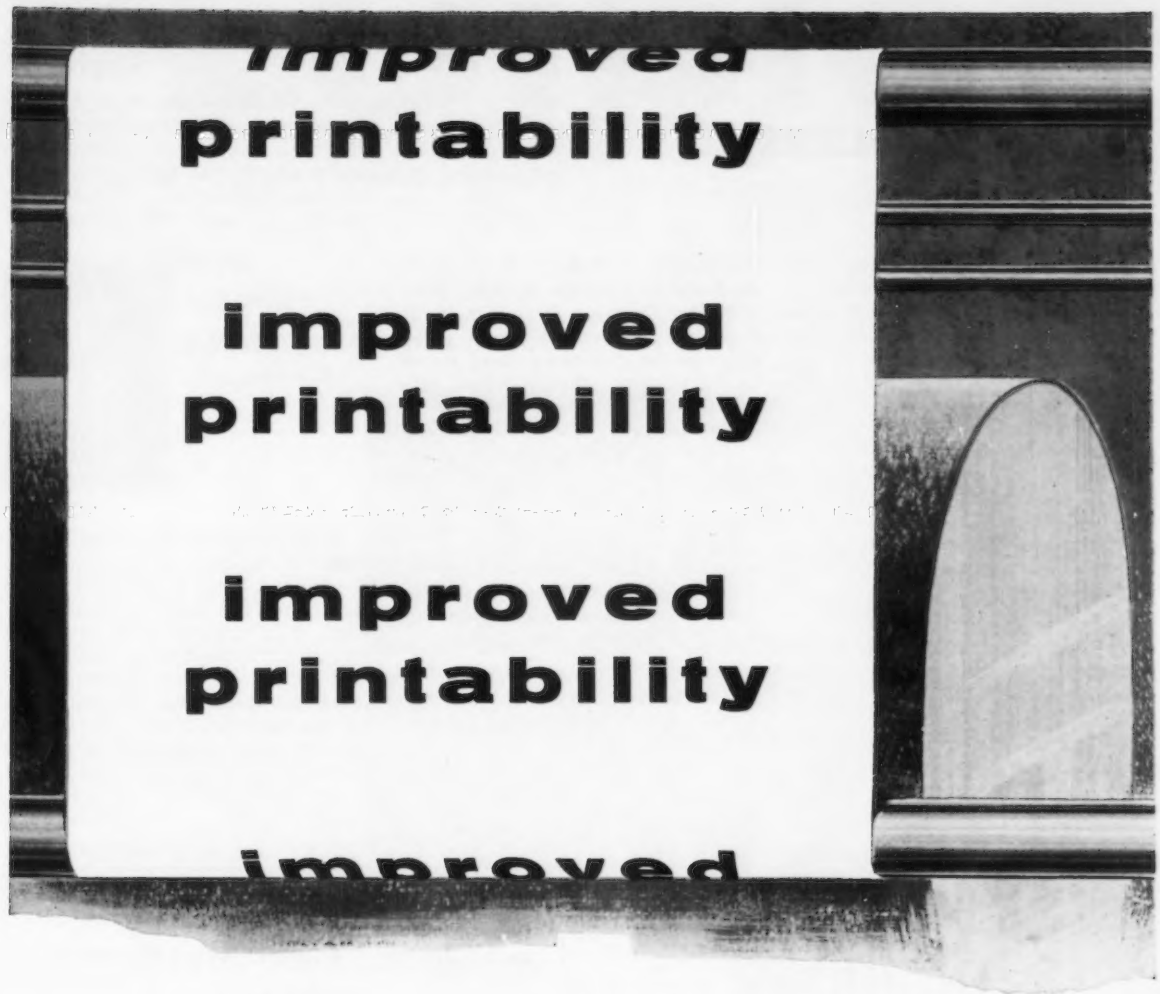
WASTE PAPER MARKET

Mill Prices, f.o.b. Trucks Shipping Point — Includes Brokerage

These quotations are a partial indication of the price range on volume tonnage in each market on the date specified, as gathered from major dealers and brokers. SPECIAL PACKINGS AND SPOT TONNAGE NOT INCLUDED. Prices nominal.

	New York	Boston	Chicago	Los Angeles
	May 18	May 18	May 18	May 18
No. 1 Mixed Paper	$ 7.00/ 8.00	10.00/ 12.00	9.00/ —	13.00/ —
No. 1 News	14.00/ 15.00	15.00/ —	18.00/ —	18.00/ —
Overissue News (Lg. size)	13.00/ 15.00	15.00/ 17.00	23.00/ —	20.00/ —
Mill Wrappers	19.00/ 22.00	13.00/ 15.00	14.00/ —	15.00/ —
Old Corrugated Containers	24.00/ 25.00	23.50/ 24.00	23.00/ —	22.00/ —
Super Resorted Kraft Paper	35.00/ 40.00	— / —	35.00/ —	55.00/ —
New Double Kr. Ld. Corr. Cuts	35.00/ 37.50	37.50/ —	37.50/ —	35.00/ —
(Semi-chem. medium)	47.50/ 50.00	45.00/ 50.00	45.00/ 47.50	— / —
New 100% Kraft Corr. Cuts	40.00/ 42.50	— / —	57.50/ —	— / —
New Br. Kraft, Env. Cuts	70.00/ 75.00	70.00/ 75.00	52.50/ —	55.00/ —
New Br. Kr. Bag Waste Prntd.	55.00/ 60.00	55.00/ 60.00	52.50/ —	55.00/ —
New Br. Kr. Bag Waste Unprintd	60.00/ 65.00	65.00/ 75.00	60.00/ —	60.00/ —
No. 1 Groundwood Shvs.	25.00/ 30.00	25.00/ 30.00	24.00/ —	35.00/ —
White Newsblanks	60.00/ 65.00	48.50/ 56.00	45.00/ —	55.00/ —
No. 1 Soft White Shvs.	60.00/ 65.00	60.00/ 65.00	55.00/ —	70.00/ —
Super Soft White Shvs.	65.00/ 75.00	75.00/ 85.00	65.00/ —	— / —
Hd. White Shvs.	85.00/ 90.00	90.00/100.00	85.00/ —	95.00/ —
Hd. White Env. Cuts	100.00/105.00	105.00/115.00	90.00/ —	113.00/ —
Col. Tab. Cards	55.00/ 57.50	55.00/ 57.50	52.50/ —	40.00/ —
Manila Tab. Cards	77.50/ 80.00	77.50/ 80.00	75.00/ —	65.00/ —
No. 1 Col. Ledger	40.00/ 45.00	37.50/ 42.50	47.50/ —	35.00/ —
White Ledger	60.00/ 62.50	60.00/ 65.00	57.50/ —	55.00/ —
Mixed Book & Mag.†	25.00/ 28.00	— / —	17.00/ —	— / —
No. 1 Books‡	30.00/ 32.50	24.00/ 26.00	35.00/ —	17.00/ —

† Includes Time & Life; no coarse groundwood. ‡ Not to exceed 10% of groundwood.



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When used as a surface size, GELVA C-3 and C-5 polyvinyl acetate copolymer resins impart a smooth finish to paper. Ink receptivity is improved. Contrast is sharply defined. Furthermore, when deposited from ammoniacal solution, the resin imparts to the sized sheet a more water resistant film. Improvements in wet and dry tensile and Mullen are also obtainable. The resins are alkali soluble. Broke recovery is quick and easy.

Write for full technical information on GELVA C-3 and C-5. Shawinigan Resins Corporation, Department 6321, Springfield 1, Massachusetts.

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NEW YORK SAN FRANCISCO SPRINGFIELD

PROPERTIES

Form—Fine beads (0.2—1.0 mm. diameter)
Transparency—Excellent
Light Stability—Good
Storage Stability—Excellent

	Softening Point	Maximum Flowable Solution
C-5V-10	123°C	20%
C-3V-10	123°C	35%
C-5V-16R	134°C	20%
C-3V-20	155°C	25%
C-3V-30	180°C	20%

Softening Point: Ball and Ring Method
Solution: Ammoniacal

GELVA® *polyvinyl acetate resins by* **SHAWINIGAN RESINS®**

PJT NEWS OF SUPPLIERS

The Rotherm Engineering Co., has recently consolidated with the Boyle Engineering Laboratory, a research and development organization with many years experience in environmental, thermal, air, hydraulic, electrical and mechanical testing, as well as extensive survey in the field of air pollution.

Rotherm has recently developed and will place on the market several new designs in sweat fitting expansion joints for hot water systems as well as piping compensators for high pressure steam lines.

E. I. du Pont de Nemours & Co. Kirk P. Ferguson has been named manager of the New York district office of the company's Dyes and Chemicals Division, succeeding Sidney M. Conn who, pending his retirement June 30, will act as consultant to the New York office.

A native of Gaffney, S. C., and a graduate of Virginia Military Institute, Mr. Ferguson joined Du Pont's Dyes and Chemicals Division in 1940 and was assigned the following year to the Chicago office for field sales training. After four years of World War II military service, he returned to the Chicago office late in 1946 as a salesman and in 1952 was named dye sales supervisor. In 1953 he became manager of the lakes, paper, and leather section of the dye sales later was named to his most recent position as assistant manager of the division in Wilmington and two years New York district office.

Harris Intertype Corp. has appointed Kenneth J. Nolan as New York district manager for the Harris-Seybold division. Mr. Nolan, who had been assistant district manager, replaces T. M. Broadston, who resigned to become vice president of the Dahlgren Manufacturing Co., Dallas.

Mr. Nolan has been with the Harris-Seybold sales department since 1950 and has held a variety of assignments in the company's Philadelphia, Washington and New York offices.

C. F. King

A. E. Broughton & Co., Inc., Glens Falls, N. Y., has appointed Charles F. King as sales representative for the entire New England States. Mr. King, was formerly with the Scott Paper Co. in South Glens Falls, until that mill suspended operation. He joined Broughton Co. in 1957 where he has been affiliated with the assembly department. Having worked on a paper machine crew, and having a keen knowledge of the Broughton equipment, Mr. King will be in a

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Defoamers Eliminate your feedbox foaming problems ...Witco Defoamers No. 2A and No. 3 will do the job simply, quickly, economically.

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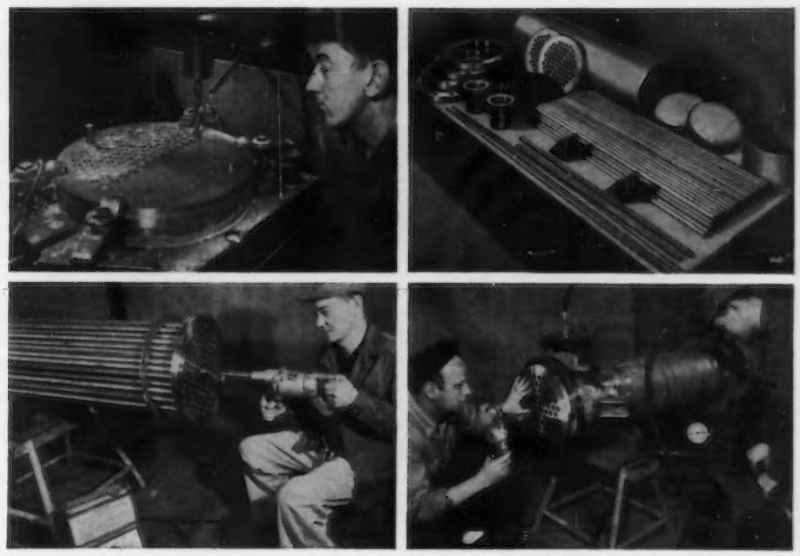

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fluid analysis
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FLUIDICS AT WORK

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If your requirements can be met by a fixed tube sheet exchanger of 316 stainless tube side and carbon steel shell with a capacity of 56, 104, 149, 216 or 316 sq. ft., we can deliver in two weeks' time including bonnets to your specific installation requirements.

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All these exchangers meet ASME and TEMA Class A codes and are rated at 75 or 150 psi.

Other designs. We also stockpile standard parts for many sizes of packed and internal floating head designs and "U" bundle models.

Many other metals. When your needs are special we can manufacture to your specifications from nickel, Inconel, monel, *titanium, tantalum, zirconium,* Hastelloy, impervious graphite, and glassed steel, or combinations of these materials.

New bulletin. Bulletin 949 has 28 pages of informative data on these flexible standard and custom-built heat exchangers, including information on applications, types available, design specifications, and operating characteristics. Bulletin 519 gives specifications on two-week-delivery exchangers.

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Pfaudler Permutit is a world-wide company with manufacturing plants in Germany (Pfaudler-Werke A.G.), Great Britain (Enamelled Metal Products Corp. Ltd.), Canada (Ideal Welding Co. Ltd.), Mexico (Arteacero-Pfaudler, S. A.), and Japan (Shinko-Pfaudler Co. Ltd.), in addition to our four plants in the U. S. And we have sales offices and representatives in leading cities throughout the free world.

75 YEARS CREATING FOR TOMORROW

position to provide his many customers with increased services and research development.

Pittsburgh Coke & Chemical Co. John E. Himmelrich has been named Eastern regional sales manager of the Protective Coatings Division.

Mr. Himmelrich will be responsible for east coast sales of the company's industrial coatings used primarily in the petroleum, marine, and chemical industries. He succeeds Howard F. Trusler, Jr., who became sales manager of the division's regional office at Houston, Tex.

Before his promotion, Mr. Himmelrich had his headquarters in Tulsa, Okla., where he represented the division's sales in the Central-West. During his eight-year association with Pittsburgh Coke & Chemical, he has been active on special assignments related to the division's growth program, and has also been responsible for its sales in Ohio, Western Pennsylvania and West Virginia.

General Electric Co. Joseph C. Allwarden has been appointed as a sales representative for the Cleveland District (Michigan Territory) of the Silicone Products Department. His office location is 2211 Woodward Avenue, Detroit 1, Mich.

A 1951 graduate of Manhattan College with a B.S. in electrical engineering Mr. Allwarden joined General Electric in 1955. His background includes experience in sales and product planning for General Electric's Medium Induction Motor Department as well as sales forecasting and personnel development for the Small A.C. Motor and Generator Department.

Mr. Allwarden will succeed J. R. Gordon, who has recently joined the R. P. Scherer Co. of Detroit.

Titanium Pigment Corp., a subsidiary of National Lead Co., has announced the transfer of two sales representatives.

William H. Abels, a salesman in the New England sales district, has been transferred to the North Central sales district, with headquarters at Pittsburgh. Mr. Abels was first employed by Titanium in 1950 as a sales trainee, moving to Boston as a salesman in June of 1950.

John P. Burke, will move to the New England sales district as a salesman. Mr. Burke's headquarters will be at Boston. He joined Titanium as a sales trainee in September, 1958.

Hills-McCanna Co. announces the appointment of Geo. S. Thomson Co., Inc., 611 N. Campbell Street, El Paso, Tex., as a stocking distributor for diaphragm valves and replacement parts. The Thomson company will serve the Western portion of the State of Texas and the State of New Mexico.

Also announced is the appointment of the Ernie Graves Co., 111 East 14th, Tulsa, Okla., as exclusive representative for Hills-McCanna diaphragm valves and replacement parts. in the State of Oklahoma, Southern Kansas, and the Texas Panhandle. Graves also represents Mills-McCanna metering and proportioning pumps and force-feed lubricators.

Austin Kuhns

Farrel-Birmingham Co., Inc., Ansonia, Conn., announces the retirement of Austin Kuhns, senior vice president after 36 years with the concern.

Born in Middletown, Conn., Mr. Kuhns graduated from Wesleyan University with a BA degree and from the Massachusetts Institute of Technology with a BS degree in chemical engineering.

He joined the then Farrel Foundry and Machine Co. at its Buffalo, N. Y. division on November 1, 1922, as a sales engineer. In 1934 he was made executive engineer in charge of marine engineering and sales. In 1943, he was elected a director of the company and became vice president in charge of development and research, with headquarters in the company's New York office. In May 1951, he became vice president and consulting engineer and transferred from New York to the executive offices in Ansonia. He was elected senior vice president on March 15, 1956.

The A. E. Staley Manufacturing Co., corn and soybean processor, is entering the synthetic polymer field.

A polymer pilot plant put in operation at Decatur early this year is now in production of acrylic type emulsions, Mr. Scheiter said. Staley also recently announced plans to acquire the UBS Chemical Corp. of Cambridge, Mass.

Acquisition of the chemical concern, subject to approval of UBS stockholders, will add that company's chemical plant and laboratories at Cambridge, a new polymer plant put in operation recently at Lemont, Ill., a polymer plant and laboratory currently under construction at Marlboro, Mass., a technical laboratory near Greenville, S. C., and other UBS facilities.

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It's at the paper mill that felt research pays off.

It begins with the Albany Felt sales or service engineer who consults with you and then relays the facts to our team of experienced designers and laboratory specialists.

This is the team that first discovered and developed the use of synthetics and chemical treatments which solve many of your critical felt problems. Working on your present requirements, they can help achieve fast, trouble-free performance.

Remember—the felts, treatments and techniques that will break tomorrow's production records are now passing their final tests "under wraps" in our testing laboratories.

Call in your Albany Felt sales engineer. Let him *show* you how Albany's research team can help you get more tons per day—more days per felt.

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Figures of the Week

PAPER PRODUCTION RATIO REPORT—American Paper & Pulp Assn. Figures

(Production as per cent of normal capacity)

COMPARATIVE WEEKLY SUMMARIES

	Apr. 11	Apr. 18	Apr. 25	May 2	May 9
1959	95.3r	95.8	95.2r	94.8r	94.8
	Apr. 12	Apr. 19	Apr. 26	May 3	May 10
1958	87.8	87.2	88.1	89.5	87.2

r Revised.

COMPARATIVE MONTHLY SUMMARIES

Year	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.	Year Avg.
1959	87.8	90.5	93.2‡	94.3‡	—	—	—	—	—	—	—	—	—
1958	86.9	89.5	89.5	88.4	87.2	87.2	75.3	89.6	86.5	91.6	90.4	93.1	87.1

‡ Preliminary.

COMPARATIVE YEARLY SUMMARIES

	1952	1953	1954	1955	1956	1957	1958	1959
Year to Date	95.1	94.4	93.8	95.6	101.6	95.2	87.7	91.2
Year Average	88.6	92.3	91.6	94.0	97.9	90.9	87.1	—

All of the above data is based on tonnage reported to American Paper and Pulp Association. Does not include mills reporting to National Paperboard Association, except in isolated cases where both paper and paperboard are produced and separate tonnage figures are not readily available.

PAPERBOARD OPERATING RATIOS†—National Paperboard Assn. Figures

COMPARATIVE WEEKLY SUMMARIES

	Apr. 11	Apr. 18	Apr. 25	May 2	May 9
1959	94	95	93	94	94
	Apr. 12	Apr. 19	Apr. 26	May 3	May 10
1958	82	87	81	81	86

COMPARATIVE MONTHLY SUMMARIES

Year	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.	Year Avg.
1959	86	93	95	93	—	—	—	—	—	—	—	—	—
1958	80	86	88	84	84	86	76	93	90	95	92	81	86

† *Percents of operation based on "inch-hours" reported on a 6-day basis to the National Paperboard Association.*

SUMMARY OF PAPERBOARD STATISTICS—National Paperboard Assn. Figures

ITEM	THIS WEEK ENDING May 9, 1959	LAST WEEK ENDING May 2, 1959	CUMULATIVE TO DATE Jan. 1 to May 9, inc., 1959
% Activity	94%	94%	92%
TOTAL	313,894	320,662	5,525,280
Liner	101,580	113,209	1,875,805
Corrugating Material	51,670	47,259	838,732
Chip & Filler Board	5,970	4,876	92,104
Total Containerboard	159,220	165,344	2,806,641
Folding	53,842	58,204	1,029,329
Set-Up	11,861	12,061	213,314
Special Food Board	30,718	32,294	516,798
Other	58,253	52,759	959,198
Total Boxboard	154,674	155,318	2,718,639
Total Orders			
Received	332,434	374,448	
Unfilled End of Week	525,874	507,369	

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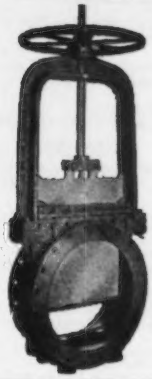

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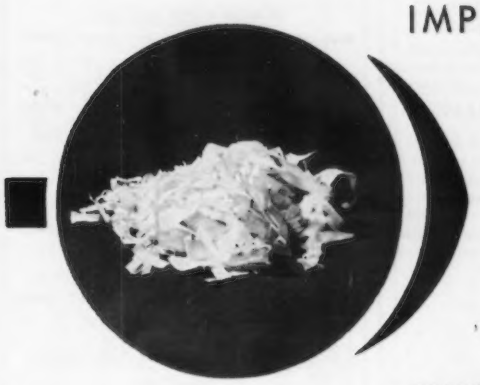

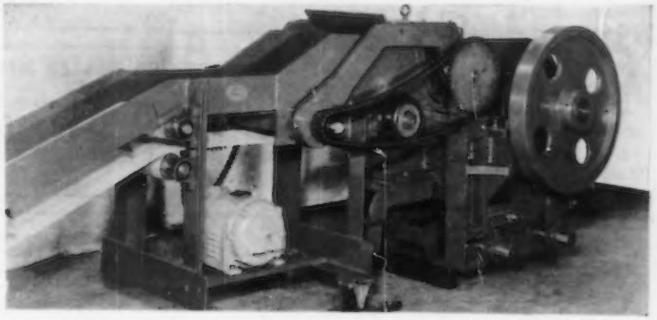

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Seybolds: 1—44" late model Seybold Model P4460 New 1952
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1—82" 10-10
1—72" 10-11
1—72" Type 10, Anti Friction bearings. Speed 2000 F.P.M.
1—72" 10-10A
1—72" 26-3A Cameron
1—72" 10-04 Shear Cut
1—62" Late Type 10 Model .04-1 BPMR (40" diameter Rewind)
1—62" 9-5
1—62" 10-5
1—62" 26-2A with 100 score cutting units
1—62" 40-1-AF
1—52", & 1—42" Model 24-7
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1—106" Langston (60" Diameter Rewind)
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4—62" 25W H-S Roll Winders
2—60" Potdevin Squeeze Roll Waxers
1—60" Hot Melt Coaters & Laminators
1—46" Reverse Roll Coater
1—30" Double Reverse Roll Coater
1—90" Duplex Hamblet, Layboy and Back Stands
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1—Beasley French Bag Machine, Range: (2" x 2½" to 6" x 13⅜")
2—Potdevin (Model 111-S) F & S Cello Bag Machine, Electric Eye
1—Potdevin Model 72-C Cellophane satchel bottom bag machine
1—Potdevin Model 296 Duplex Coffee Bag Machine
1—Weber Model "CN" Cellophane Satchel Bottom Bag Machine
1—Simplex Model 4-7 Cellophane Bag Machine
1—Roto Bag Machine Po-5
2—Po-2 Roto Polyethylene Bag Machines.
2—Hayssen 4 roll Toilet wrappers
1—Hayssen Model 5-9 Cellophane Wrapper
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1—48" Unicraft Embosser
2—Hudson Sharp Napkin Machines, with embossing attachments; 1 — 3 Deck (No Printer), 1—2 Deck with 2-color printer.
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1—80" Simpco Die Cutting Press
1—36" 2 color Dutro Converter Score Type Slitter
M-25

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1—12 ft. diameter x 45 ft. long

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2—1500 lb. rag beaters, Valley Iron, bandless rolls, 54" x 48", cast iron tubs

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1—3 roll 84" calender stack.
1—4 roll 72" Calender Stack. (Extra heavy duty).
1—5 roll 82" face.
1—5 roll 86".
1—7 roll, 84" face.

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1—96" Murray 4 knife Chipper—anti-friction bearings.
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24—Chipper Knives 15⅞ x 8¼, 2 slot.

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1—Murray Chip Crusher.
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3—42" diameter x 106" face
7—36" diameter x 94" face, hollow shafts, Very good condition.
1—30" diameter x 72" face.
1—30" diameter x 92" face.
1—36" diameter x 82" face
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1—Biggs 12' 6". (Globe)
1—10' high x 5' dia. High pressure vertical digester.

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1—#6 Reeves vertical—anti friction bearings, totally enclosed.
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1—Jones 21 H.P., ratio 10 to 1 (enclosed angle drive)
1—#4 Reeves Drive
2—Waterbury Hydraulic Variable speed line shaft drives (from 40 to 100 H.P.)
1—5 H.P. Reliance Drive, complete with starting equipment, like new.
1—20 H. P. U. S. Varidrive
1—Agitator drive
1—400 h.p.—Westinghouse Drive

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6—24" diameter x 80" face, Lukens High Pressure Dryers, anti friction bearings.
1—28" diameter x 84" face
2—30" diameter x 40" face with bearings
2—30" diameter x 48" face with bearings.
4—48" dia. x 52" face with frames, gears, bearings
1—36" diameter x 44" face
3—36" diameter x 76" face.
5—36" diameter x 84" face and gears
1—16" diameter x 54" face (steel)
1—48" diameter x 118" face
6—48" diameter x 130" face.
1—48" diameter x 92" face.
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1—43" 3-Roll Embossing Calender.
1—62" 2 roll Embosser.

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1—Extractor roll, 26" diameter x 104" face

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1—Dorr-Oliver Filter, 3 ft. dia. x 6 ft. face, stainless steel construction, with pump.

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1—8 Plate "Packer"
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1—Emerson Jr. #1 Jordan, like new condition, with motor.
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2—8" x 8" Valley Sheet dryers
1—12" x 12" Valley Sheet dryer
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1—15 lb. E. D. Jones Beater
1—8" x 8" Valley Hydraulic Press
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1—Williams Freeness Tester, with Timer
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2—84" Asphalt laminators.

MISCELLANEOUS
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1—36" Farrell Roll Grinder, 250" face

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Felt, Table, Press, Breast, Couch, etc. Various sizes and types. (Bronze, Rubber, Iron, etc.)

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1—16" "Swift" Paper Shredder

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1—32" Cameron Type 28-8-3, shear cut duplex, 30" rewind, constant tension and variable speed motor drive, practically new condition. Will lengthen up to 72" wide.
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1—42" Cameron Type 26-2A
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1—102" Cameron Type 18, 60" diameter
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84" Quick change slitting device shear cut, complete, practically new.

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1—Beloit, 36" diameter x 246" face, SKF bearings.

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1—Beloit Rubber Covered Suction Felt Roll 109 face x 20½" diameter.

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1—9 Roll 56"

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1—72" Rogers Wet Machine.
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The above two dryers are fully equipped with doctors, Honeywell speed indicators and air cylinders with Foxboro controls. All rolls (felt & wire) equipped with A.F. Bearings. Direct Motor Drives. Excellent Condition.

2—Calletors.

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26—36" x 72" Complete Dryer Section, Stack, Drives, Etc.
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1—84" Kamyr Machine, Complete. 75 ton per day output.
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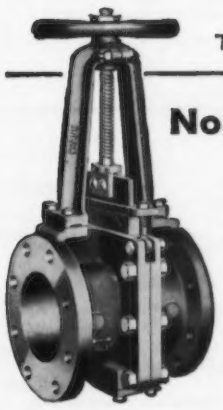

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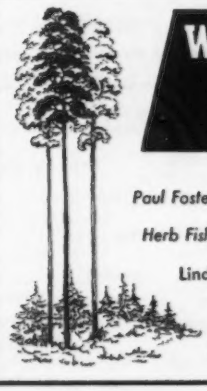

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Anglo Paper Products Ltd. ... —
Annin Company ..... —
Antara Chemicals, Sales Div. Gen. Aniline & Film Corp. .. —
Apmew, Inc. ..... —
Appleton Machine Co. 54
Appleton Wire Works ..... —
Appleton Wood Products Co. .. —
Armco Drainage & Metal Prod. Co. ..... —
Armco Steel Corp. ..... —
Armstrong Machine Works .. —
Asten-Hill Mfg. Co. ..... —
Atlantic Coast Line R. R. .... —
Aurora Pump Div., N. Y. Air Brake Co. ..... —

Babcock & Wilcox Co. ..... —
Bahr Brothers Mfg. Co. ..... —
Bailey Meter Co. ..... —
Bauer Bros. Co. 67
Becco Chem. Div., Food Machy. Corp. ..... 52 & 53
Beloit Iron Works Co. ..... —
Bird Machine Co. 17
Bixby, R. W., Inc. ..... —
Black-Clawson Co. 60
Bolton & Sons 3
Bowsher Co., N. P. ..... —
Brandon Sales, Inc. ..... —
Broughton, A. E. & Co. ..... —
Brown Company ..... —
Buckeye Cellulose Corp. ..... —
Buffalo Forge Co. ..... —
Buffalo Pumps, Inc. ..... —
Butterworth, H. W., & Sons Co. ..... —

Cady, E. J., & Co. 67
Cameron Machine Co. ..... —
Carthage Machine Co. ..... —
Central National Corp. ..... —
Central Soya Co. ..... —
Chain Belt Co. ..... —
Ciba Company ..... —
Cities Service Oil Co. 35
Clark-Aiken Company ..... —
Classified Advertising 70
Clearing House 70
Cleveland Crane & Engrg. Co. —
Columbia-Geneva Steel Div., U. S. Steel Corp. ..... —
Columbia-Southern Chem. Corp. Sub. of Pittsburgh Plate Glass Co. 66
Combustion Engrg. Co. ..... —
Conveyair Sales Ltd. ..... —
Corn Products Sales Co. ..... —
Crane Co. 73
Curtis-Wright Corp. 43

Davis, Frank H., Co., Inc. .. 73
DeZurik Corporation ..... —
Dewey & Almy Chem. Co. .. —
Diamond Alkali Co. ..... —
Dierks Paper Co. ..... —
Dilts Machine Works 60
Dodge Mfg. Co. ..... —
Dorr-Oliver ..... —
Dow Chemical Co. ..... —
Dowell, Inc. ..... —
Draper Bros. Co. ..... —
Dryden Paper Co., Ltd. ..... —
du Pont, E. I., de Nemours & Co., Dyestuffs Dept. ..... —
du Pont, E. I., de Nemours & Co., Electrochemical Dept. ..... —
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Eaton Manufacturing Co. .... —
Ebasco Services, Inc. ..... —
Egan Frank W., & Co. ..... —
Elixman Paper Core Co. ..... —
Elwell-Parker Elec. Co. ..... —
English China Clays Sales Corp. 68
Executone Inc. ..... —
Export Supplement ..... —
Extremultus, Inc. 27

FabriValve Company ..... —
Fairbanks Morse & Co. ..... —
Falk Corporation ..... —
Fibrecast Company ..... —
Fife Manufacturing Co. ..... —
Fisher Governor Co. ..... —
Fitchburg Screen Plate Co. .. —
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Garlock Packing Co. ..... —
Gaspesia Sulphite Co. Ltd. ... —
Gates Rubber Company ..... —
Geigy Chemicals Corp., Geigy Dyestuffs Div. Front Cover & 4
General Dyestuffs Co. ..... —
General Electric Co. ..... —
General Mills, Inc. ..... —
General Tire & Rubber Co. ... —
Gibbs-Brower Co. 70
Gilbert & Nash Co. 54
Glidden Company 51
Goodyear International Corp. . —
Goodyear Tire & Rubber Co. .. —
Gottesman & Co. ..... —
Goulds Pumps ..... —
Grace, W. R., & Co., Dewey & Almy Chem. Div. ..... —
Graver Tank & Mfg. Co. .... —
Grinnell Co., The ..... —
Gruendler Crusher & Pulv. Co. —
Gulf Oil Corporation ..... —
Gurley W. & L. E. ..... —

Hamblet Machine Co. ..... —
Harris-Seybold Co. ..... —
Heimbach, Thomas J. ..... —
Hendrick Mfg. Co. ..... —
Hercules Powder Co. ..... —
Hills-McCanna Co. 20
Hooker Chemical Corp. 41
Houghton & Company ..... —
Huber, J. M. Corp. ..... —
Hudson Sharp Machine Co. ... —
Hungerford & Terry, Inc. ... —
Hunt, Rodney ..... —
Huyck, F. C. & Sons 36

Improved Machinery, Inc. .... —
Ingersoll-Rand Co. ..... —

Jagenberg Werke ..... —
Jenkins Brothers ..... —
Johns-Manville Corp. 44
Johnson Corp., The ..... —
Johnson, Alvin H., Co. 67
Jones, E. D., Corp. 31
Jones & Laughlin Steel Corp. —
Kalamazoo Tank & Silo Co. . 49
Kidder Press Co. ..... —
Kinney Engineers Inc. ..... —
Knox Woolen Co. 68

Langston, Samuel M., Co. 37 & 38
LaPaperterie 42
LaPorte Titanium, Ltd. ..... —
Lawson Company ..... —
Layton-Greenfield Inc. ..... —
Lestoil, Inc. ..... —
Link Belt Co. ..... —
Lockport Felt Co. ..... —
Lockwood Greene Engineers .. —
Lodding Engineering Co. .... —
Lukon, Inc. ..... —
Lunkenheimer Co. ..... —
Lyddon & Co. 57

Magnus Metal Corp. ..... —
Main, Charles T., Inc. 64
Manchester Machine Co. ..... —
Marathon—A division of American Can ..... —
Martel, Catala et Cie ..... —
Mead Pulp Sales, Inc. ..... —
Merrick Scale Co. ..... —
Metalsalts Corp. ..... —
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Mixing Equipment Co. ..... —
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Mt. Vernon Mills Inc. ..... —
Murray, D. J., Mfg. Co. ..... —

Nash Engineering Co. ..... —
National Aluminate Corp. .... —
National Lead Co., Magnus Metal Div. ..... —
National Starch & Chem. Corp. .....Cover 3
National Tube Div., U. S. Steel Inc. ..... —
New Jersey Zinc Co. ..... —
Nichols Eng. & Research Corp. .....Cover 4
Nopco Chemical Co. ..... —
Norgren, C. A. Co. ..... —
Northeastern Paper Sales .... —
Norton Co. ..... —

Oakite Products Inc. ..... —
Ohio Injector Co. 2
Osborne Paper Mill Equip. Corp. ..... —

Paper Conv. Mch. Co. ..... —
Parsons & Whittemore Inc. . 57
Patton Mfg. Co. ..... —
Penick & Ford ..... —
Penn. Ind. Chem. Corp. ..... —
Pennsalt Chem. Corp. ..... —
Perkins, B. F., & Sons, Inc... —
Perkins Goodwin Co. 39
Personnel Service Associates .. —
Permutit Co., Div. of Pfaudler Permutit Inc. 63
Pioneer Paper Stock Co. .... —
Potdevin Machine Co. ..... —
Powell Valves ..... —
Price & Pierce, Ltd. ..... —
Pusey & Jones Corp. ..... —

Railway Supply & Mfg. Co. ... —
Raymond, Chas. P. Service, Inc. ..... —
Record Fdy. & Mch. Co. 69
Red Ray Mfg. Co. ..... —
Remington Arms Co., Inc. ... —
Rhoads, J. E., Sons Co. ..... —
Rice Barton Corp. ..... —
Riedel, Gus & Son ..... —
Riegel Paper Corp. ..... —
Rohm & Haas Co. 19
Ronningen-Petter Co. ..... —
Roosevelt Paper Co. ..... —
Roots-Connersville Blower Div., Dresser Industries ..... —
Ross, J. J., Co. 71
Ross, J. O., Engrg. Co. ..... —
Ross Midwest Fulton Corp.... —
Ross Paper Machinery Co. ... —
Ruderman Machinery Exchange .....72 & 73
Rust Engineering Co. ..... —
Rust Industrial Co. 64
Ryerson, Jos. T., & Son ..... —

Sandoz, Inc. 55
Sandy Hill Iron & Brass Works 6 & 7
Scapa Dryers Inc. ..... —
Seaboard Air Line R. R. Co. .. —
Shartle Div., Black-Clawson Co. 60
Shawinigan Resins Corp. 61
Sheffeld Corp. ..... —
Shell Chemical Corp. ..... —
Shuler & Benninghofen ..... —
Shy, C. D., & Company 64
Signode Steel Strapping Co. . 10
Sinclair Company ..... —
Sirrine, J. E., Co. ..... —
SKF Industries ..... —
Smidth, F. L., & Co. ..... —
Socony Mobil Oil Co. ..... —
Sonoco Products Co. ..... —
Southworth Machine Co. ..... —
Spraying Systems Co. ..... —
Sprout Waldron & Co. 40
Stadler Hurter & Co. ..... —
Staley Mfg. Company ..... —
Stanley Steel Strapping 9
Stebbins Engrg., Co. ..... —
Stephens-Adamson Mfg. Co. ... —
Stein, Hall & Co. ..... —
Stone & Webster Engrg. Corp. —
Stowe-Woodward, Inc. ..... —
St. Regis Paper Co. ..... —
Sunday, George M., Assoc. .. 70
Swenson Evaporator Co. ..... —

Taylor Instrument Co.'s ..... —
Taylor Stiles & Co. 69
Taylor-Wharton Company .... —
TeJax Engrg. Corp. ..... —
Tennessee Coal & Iron Co. ... —
Tennessee Corp. ..... —
Testing Machines ..... —
Texaco, Inc. ..... —
Texas Gulf Sulphur Co. ..... —
Thermal Equipt. Grp. ..... —
Thiele Kaolin Co. 8
Thomas Paper Stock Co. 69
Thurso Pulp & Paper Co. .... —
Titanium Pigment Corp. .... —
Torrington Co. ..... —
Towmotor Corp. ..... —
Turner Halsey Co. ..... —

United Engrg. & Fdy. Co. ... —
U. S. Industrial Chem. Co. Div. of National Distillers & Chem. Corp. ..... —
United States Steel Export ... —
United States Steel Supply Co. —
U. S. Steel Corp. ..... —

Valley Iron Works ..... —
Vanderbilt R. T., Co. 12
Virginia Smelting Co. ..... —
Voith, J. M., G. m. b. h. ..... —

Waldron, John Corp. ..... —
Waldorf Electronics Co. ..... —
Walworth Co. 56
Weber, H. G., Company ..... —
West End Chemical Div., Stauffer Chem. Co. ..... —
Westvaco Chlor-Alkali Div., Food Mchy. & Chem. Corp. ..... —
West Virginia Pulp & Paper Co. ..... —
Weyerhaeuser Timber Co. .... —
Whiting Corp. ..... —
Williams Apparatus Co. ..... —
Williams-Gray Co. 73
Witco Chemical Co. 62
Woodpulp, Inc. ..... —
Wood's, T. B., Sons Inc. .... —
Wyandotte Chem. Corp. ..58 & 59
Wyatt Metal & Boiler Works . —

Yarnall-Waring Co. ..... —

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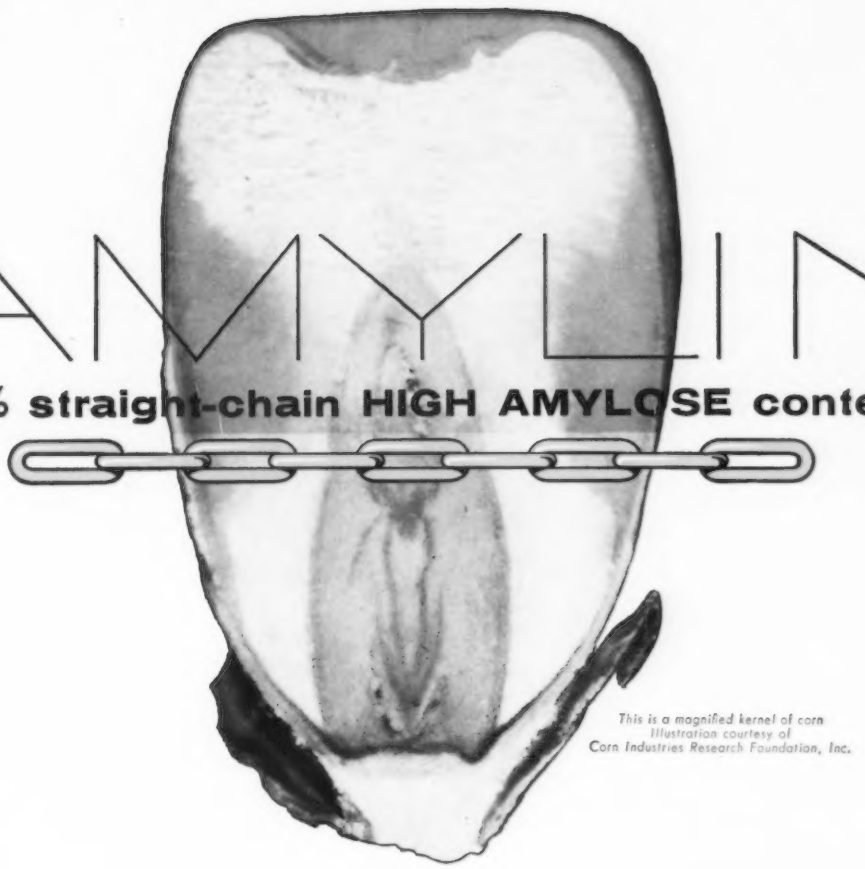

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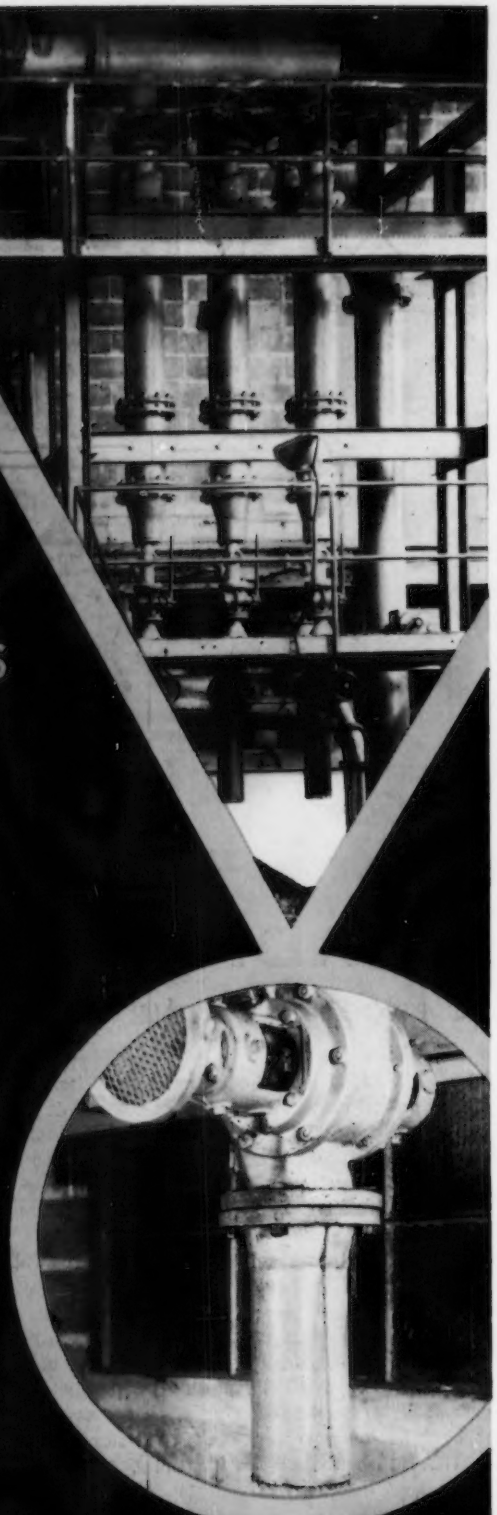

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